No. 2.] [April 1876.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—WHAT IS SENSATION?

THE many difficulties which lie in the way of psychological investigation are complicated by the deplorable and inevitable ambiguity of communication, resulting from an absence of strictly defined technical terms. If the British Association, or the Royal Society, would call upon English psychologists to draw up a list of terms which they were prepared to employ in a strictly defined sense, it would have as great an effect on the study of psychical phenomena as the botanical nomenclature of Linnæus, or the chemical nomenclature of Lavoisier, has had on botany and chemistry. Such terms as Sensation, Perception, Consciousness, Soul, Volition, &c. would not then be left in their present chaotic state, their meanings not only varying in various treatises, but varying in different parts of the same treatise.

I select Sensation for illustration. The term will be found employed with such widely different meanings, even in the same treatise, as to render many propositions in which it occurs truisms, or transparent absurdities, according to the interpretation. It sometimes means the simple reaction of a sensory organ—as in a sensation of colour or of temperature. It sometimes means a complex of many reactions—usually called perceptions—as in a sensation of sight. It sometimes means only one element in a judgment; at other times it means the judgment which groups the present impression with the revived impressions of other sensory organs. No one hesitates

to say that he had "a sensation of water" on placing his hand in a tub. The complex of elements here represented by the term is appreciated when we reflect that in it there were sensory reactions of contact, temperature, and muscular movement, rapidly succeeding each other. Unless the feeling of *touch* had been followed by a feeling of *temperature*, and these by one of *yielding* to the movement of the hand, there would not have emerged the judgment: "this is water;"* nor unless these feelings revived past feelings would this judgment have been formed: the infant would feel the contact, the temperature, and the yielding movement, but would not group these into the judgment "water." In like manner no one hesitates to say that among the various "sensations of sight" which he has just had, were those of a street, a crowd, a horse, and a coal-waggon. When sensations thus stand for complex perceptions it is very easy to justify the proposition that Sensation is the source of all our ideas; a proposition which appears utterly untenable when each sensation is understood as the simple reaction of the sensory organ.

Another, and more misleading, ambiguity arises from the want of an adequate distinction between Sensibility and Consciousness—the two terms being sometimes interpreted as synonymous, sometimes as different. Thus the question often arises whether we can have sensations without consciousness, or whether a sensory reaction is rightly named a *sensation* when it is unaccompanied by consciousness? The physiologist finds himself compelled to speak of "unconscious sensations" if he would explain many phenomena. To the psychologist, on the contrary, such language is nonsense, equivalent to "unfelt feelings," or "invisible light." And there is reason for both. The physiologist is considering the organism and its actions from their objective side, and endeavouring to trace the physical mechanism of the observed phenomena. These he has to interpret in terms of Matter and Motion. The psychologist is considering the organism and its actions from their subjective side, as facts of Consciousness and not as facts of a physical order at all. He therefore interprets the changes felt, in terms of Feeling. The mechanism which is *seen* (really or ideally) in objects, is in the subject a dependent

* Pathological cases analyse these complex conditions. Here is one: M. Landry had a patient in whom the sensations of temperature were completely abolished in one limb, while those of contact were normal. When touched with a sponge dipped in hot or cold water, he felt the touch, but was unable to say whether the sponge was wet or dry; when it was lightly moved over the skin, he felt it as a smooth body, but not as a wet body. Landry: *Traité des Paralysies*, 1859, I. p. 180.

succession of *feelings*. We may see a neural process in others, we only feel a change of consciousness in ourselves; and if we *could* follow the course of a neural process in ourselves during the very changes of feeling, we should still have to separate the two aspects of this phenomenon, and express these aspects in different terms.

The physiologist therefore is, rigorously speaking, confined to the objective aspect: to him the reaction of a sensory organ is a sensation, and the sensation is this only. It is true that he has borrowed the term from the psychologist, because he *infers* that a psychical process is somehow or other involved in this neural process: the stimulus which changes the physical condition of the organ at the same time changes the state of Feeling. He sees the stimulus accompanied by a movement, and infers that it is accompanied by a feeling. But whether this inference is correct or not, what he has to deal with primarily is the neural process; and this, as the reaction of a sensory organ, he calls a sensation.

Not so the psychologist. He has only direct knowledge of a change of feeling following some other change; he *infers* that this change originated in the action of some external cause, *infers* that it is accompanied by a neural process, and is willing to hear what the physiologist can discover respecting this inferred process. The change of feeling which he calls sensation is therefore wholly a fact of Consciousness; and however he may endeavour to complete subjective interpretation by objective observations, borrowing from Physiology as the physiologist borrows from Psychology, he can no more recognise the existence of unconscious sensations than of feelings that are unfelt.

When physiologists speak of "unconscious sensations" they refer to neural processes which, although belonging to the class of sensory reactions universally recognised as sensations, are not accompanied by secondary reactions which have been specially designated by the term Consciousness.* Physicists have to speak of "invisible rays of light," meaning those rays which are of a different order of undulation from the visible rays, and which may become visible when the susceptibility of the retina is exalted. Sensory reactions which in one state of cerebral centres are incapable of determining the secondary reaction (named Consciousness), will in another state of those centres become conscious sensations.

But here again the ambiguity of phrase obstructs interpreta-

* Unconscious sensations are defined: "les phénomènes sensitifs qui ne diffèrent des sensations perçues que par le défaut de transmission à la conscience."—Landry: *op. cit.* p. 166.

tion. Consciousness stands for Sensibility in general, and also for a particular *mode* of Sensibility, known as Reflection, Attention, or Thought. The former meaning is an extension of the term similar to that which has been given to the term Rose: this term originally meant *red*, and afterwards a particular red flower; yet we have now 'yellow roses' and 'white roses,' because the term has dropped its original signification of colour, and retained only that of particular flower. So Consciousness has dropped its original significance of Reflection or Thought, and retained only that of Sensibility or sensory reaction. But while this extension of the term Rose has been universally allowed, the extension of the term Consciousness has been far from universal; indeed the majority of psychologists separate Sensation from Consciousness, and declare that to have a sensation and be conscious of it are two different things. Different they are, if Consciousnesss means *not* the sensory reaction, but a secondary reaction in other parts of the organism. In this sense we may be said to hear a sound (to have the sensation) without being conscious of hearing it, as we can have a congested liver without knowing it. But in both cases the sensitive organism has been affected; its condition changed; and the question is: are all changes in the sensitive organism to be included under the term Consciousness, or only some changes?

The ambiguity becomes more striking in the fact that precisely in the same sense in which we are said to act unconsciously, and to have unconscious sensations, we may be said to have unconscious thoughts. Both sensation and thinking go on sometimes in the broad daylight of consciousness, at other times in the dim twilight of unconsciousness; sometimes the particular sensations or thoughts are "attended to," discriminated from among the hurrying streams; at other times they pass undistinguished. Now when Psychology is called the science of the facts of Consciousness we must either exclude sensation and thought from the facts, or we must cease to speak of them as occurring unconsciously. We are not at liberty to define Vitality as the activity of the Organism, and then speak of certain actions of the Organism as not being vital.

Sensibility is perhaps a less ambiguous term, and has the double advantage of expressing both the objective and the subjective aspects of the phenomena. It points to the sensory organism, and to the feeling which is the psychical aspect of the sensory reaction. We never do, indeed we never can, entirely separate the objective from the subjective aspect in any mental phenomenon; but so far as the separation is prac-

ticable it may be expressed by keeping the term Sensation for the objective, and Feeling for the subjective aspect. The physiologist therefore will be occupied solely with the neural process in his endeavour to localise the observed functions in their respective organs. The psychologist will be occupied solely with the psychical process in his endeavour to analyse an observed function into its elementary feelings. Each requires the aid of the other; each supplements the other. The convergence is more indispensable than is generally suspected. As Physiology is Anatomy in Action, Psychology is Physiology in Feeling. The anatomical analysis of the organism into its organs is not possible unless guided by the indications of physiological observation: the organs must be seen in action before they can be recognised *as* organs. And these actions themselves must be analysed into their elementary feelings, localised in their respective organs. In vain the scalpel and the microscope will separate the brain into distinguishable parts and constituents; to know the function of this brain, and the significance of its parts, physiological observation is necessary; nor would this, however perfect, suffice; the psychological analysis of Feeling will be necessary to guide physiological analysis in the determination of organs.

I must not be seduced to follow further these considerations, my present purpose being simply to call attention to the existing ambiguities in psychological terms, and the pressing need there is for some convention among men of science which would once for all establish a system of definite symbols; so that for any subsequent writer to speak of sensation when he meant sensation *plus* judgment, would be as reprehensible as to speak of oxygen when he meant carbonic acid.

GEORGE HENRY LEWES.

II.—CENTRAL INNERVATION AND CONSCIOUSNESS.

We are led by anatomical inquiry to conceive of the Central Nervous System, however complex the structure of its different organs, as built up in a very simple and uniform manner out of elementary forms. At all points the system may be resolved, by means of microscopic analysis, into a connected framework of fibres and cells. Its fibres which run in an unbroken course from the peripheral nerves into the central regions are regarded as apparatus which like the nerves proper have transmission as their sole function, whereas the

cells, which are the characteristic elements of the central organs, are understood to be terminal or medial points, in which the action transmitted either originates or undergoes some sort of modification.

Hence there arise two principal problems for physiological investigation: first to trace the course of the paths of transmission, and secondly to determine the changes which the process may undergo through the interpolation of nervous cells. These two inquiries cannot be sharply separated from one another. On the one hand the nervous fibres are not simply conductors, but modify the action which is transmitted through them. In most cases the action as it proceeds appears to gather intensity, as was first shown by E. Pflüger. Sometimes, however, under special circumstances the opposite effect presents itself: the physiological excitation gradually subsides in the course of transmission. On the other hand the central cells appear in many cases to be inserted in a path of conduction solely for the purpose of dividing this path into several branches or of bringing about a considerable change in its direction. In these cases too we may reasonably suppose that the central cells exercise an influence on the course of the action transmitted through them. We can therefore define the first problem in the mechanics of central innervation as the determination of those changes which the interpolation of central cells occasions in the processes conducted along the nervous fibres. Now here we must either be able to assume the processes as known beforehand, or it must be possible in every single case to examine the process of innervation both apart from, and as subjected to, the influence of the interpolation of central cells.

The physical and chemical changes in the nervous fibres which are the ultimate conditions of the physiological process of conduction, are, for the most part, still unknown; and, even in so far as these changes are known, their relation to the physiological action of the nervous fibres is still a matter of doubt. The mechanical theory of nerve-conduction must therefore be based altogether for the present on the observation and measurement of its external physiological effects. Among these muscular contraction is the best external measure of the processes taking place within the nerve. Just as the mechanical theory of heat in its present stage of development is content as a rule to define heat as a mode of motion of which the more exact form is undetermined, but to which we may reason back from the external motor effects of heat, so the theory of nerve-conduction must regard innervation as a motor process in the interior of the nerve, which

arises through definite external motions, the so-called nerve-stimuli, and the strength, course and duration of which may be inferred from the external motion into which it is transformed, namely the contraction of muscle. At the same time such conclusions have an element of uncertainty, since innervation is to be conceived as a complex motor process which must, wherever it is possible, be resolved into its single components. I myself have shown* that it is possible, through the mere analysis of muscular contraction, to resolve the process of innervation in the peripheral nerves into different processes going on side by side and to some extent mutually antagonistic. From this point of view there is opened up at the same time the simplest route to the investigation of those changes which innervation undergoes through the interpolation of central elements. That is to say, this line of investigation will have to set out with the question: "How does the process of nervous excitation (which has to be measured in its external motor effects) when produced by a direct stimulation of a motor nerve differ from the same process when central elements are interposed in the path of conduction?" Here we naturally turn to the Reflex Process as that mode of central innervation which, so far as is known, realises this last condition in the simplest manner. For reflex movement is marked off by this one circumstance from muscular contraction produced through the direct stimulation of a motor nerve.

We have to thank Helmholtz† for the first numerically exact observations which have been made in this direction. These, however, are concerned exclusively with the average interval of time after which the reflex movement occurs, it being proved that the process of excitation undergoes a considerable retardation in its transmission through central elements. Next we must reckon the observations which Pflüger‡ has collected relating to the laws of conduction of reflex nervous action and which point to a varying disposition of the central substance with respect to the conduction of excitations according to the direction in which they arrive and depart. These last researches have so far however yielded only qualitative results. Finally it is to be mentioned that more recently the attention of several observers, Setschenow§ being the first,

* *Untersuchungen zur Mechanik der Nerven und Nervencentren*, Abth. I. Erlangen, 1871.

† Pflüger's *Archiv für Anatomie und Physiologie*, 1850, 1852.

‡ *Die Sensorischen Functionen des Rückenmarks*, Berlin, 1853.

§ Setschenow, *Ueber die Hemmungsmechanismen für die Reflexthätigkeit des Frosches*, Berlin, 1863; Setsch. u. Paschatin, *Neue Versuche am Hirn u. Rückenmark des Frosches*, Berlin, 1865; Setsch. *Ueber elektrische u. chemische Reizung der sensibeln Rückenmarksnerven*, Graz, 1868.

has been directed to the peculiar phenomenon that different reflex excitations exercise in certain circumstances a mutually inhibitory influence, and that similar inhibitory influences can issue from the stimulation of the higher central structures. Several of these researches have been published since the conclusion of my own investigations of which I am about to offer a short summary. I shall indicate at the proper places the points in which my results do or do not coincide with those of other observers, while describing the course which my own researches have taken. As regards technical materials and methods I shall in these pages, where I am seeking to interest psychologists and philosophers in the general conclusions to be drawn from my labours, content myself with naming what is essential to the understanding of the results, reserving the rest for a more elaborate publication which will address itself to the narrower circle of physiological experts.

The investigation begins (I.) with the *simple reflex excitation of the spinal column*, the various forms of which under their respective normal conditions we will seek to determine. Among the different forms of reflex conduction the simplest is (1) the *unilateral* variety, in which the excitation is passed on from a posterior root to the anterior root belonging to it. Next to this is (2) *transverse* conduction, in which the excitation of a sensory root of the one side is transmitted to motor roots of the other side given off at the same height. The most complicated form is (3) that of *longitudinal* conduction which takes place along the axis of the spinal column from higher to lower nerve roots or conversely, and which again may be either unilateral or transverse. With these inquiries into the conduction of reflex processes we shall need to connect another question (4) that of the *influence of the spinal ganglia on reflex excitation.*

In the second place (II.) we will inquire into the subject of *reflex excitability and its changes under different conditions;* and more particularly (1) the influences of *preceding stimulations,* (2) the effects of *temperature,* and (3) certain *toxic* effects which alter the reaction of the spinal column to reflex stimuli.

A third subject of inquiry (III.) will be the influence which is exerted on the reflex process by the *simultaneous excitation of other nerves or nerve-centres.* Here our attention will have to be directed (1) to the interference of stimulations acting simultaneously upon different parts of the *spinal column,* and (2) to the effect which the *higher nerve-centres* and their stimulation produce on the reflex process in the spinal column.

Only after we have thus examined the subject from different sides shall we be able (IV.) to discuss the *essential qualities of the reflex process and the nature of central innervation generally.* Finally (V.) we may consider the psychological bearings of the inquiry, and seek to understand in general the *relation between central innervation and consciousness.**

I.

According to Pflüger the general law of conduction of reflex action is as follows: first of all with moderate stimulation reflex contraction appears only on the side on which the stimulation takes place; with increasing stimulation the muscles lying symmetrically on the other side are also thrown into a state of contraction; later on this state of contraction extends upwards and downwards till at last all motor nerves which spring from the spinal column and the medulla oblongata are simultaneously excited. This law however supplies only a qualitative expression for the variations in intensity of the stimuli required for unilateral, transverse and general reflex excitation. Nor is any account given of the precise course of the reflex excitation, and more particularly of the various degrees of intensity with which the stimulation travels in different directions within the central organ. To supply this deficiency it is necessary to substitute a quantitative investigation. We must obtain an exact record of the series of changes making up the reflex contractions, and this is best secured by the following device. The reflex contraction under examination is compared with a second contraction effected in the same group of muscles through another stimulation applied at exactly the same moment of time. This other contraction may either be produced by a direct stimulation of the motor nerve or be itself a reflex contraction. The direct form is employed in the investigation of simple unilateral reflex action. In order to secure as far as possible similar conditions for the phenomena to be compared, we select in both cases such an intensity of the stimulus as will make the amounts of contraction (represented graphically by height of curve) equal. In this way the difference of intensity in the stimuli supplies a measure for the difference between the reflex and the direct excitability. In the investigation of transverse reflex conduction and of longitudinal conduction in the spinal column we commonly use for comparison not direct contraction but simple unilateral reflex contraction; for in these cases we are concerned with relatively great retardations and inhibitions in the transmission of the excitation through the spinal cord. It should be added that

* The first three sections that follow in smaller type are given in abstract only, and the author is not responsible for them in their present form. Sections IV. and V., as well as the Introduction, are translated *in extenso*.—Ed.

the research in its main parts depends on the use of the pendulum-myograph, which gives the means of recording contractions that follow very closely on one another. The subject of experiment is always a frog, and the stimulus is an electric (generally induction) current.

(1.) *Unilateral Reflex Excitation:* Simple unilateral reflex excitation lends itself more especially to the investigation of the general features of the reflex process and of the changes which this undergoes under different conditions. Overlooking for the present all changes of reflex excitability, we have here to consider how the strength of the stimulation affects the commencement and the course of the reflex process.

The reflex contraction differs under all circumstances from the second contraction (produced by direct stimulation of the motor nerve) in two respects: it commences *later* and it is of *longer duration*. The first difference depends on the intensity of the stimuli which is known to affect the period of "latent excitation" (viz. that in which the muscle is apparently still at rest). Thus the reflex process is greatly retarded relatively to the other when the direct stimulus is strong and the reflex stimulus weak, and slightly retarded when the direct stimulus is weak and the reflex stimulus strong. In this latter case the difference may become infinitesimal so that both contractions apparently commence at the same instant, though the reflex contraction never *precedes* the other. As a rule even the strongest reflex excitation will undergo as compared with the weakest direct excitation a certain delay, though the quantity may be too small for determination by our chronometric instruments. On the whole, too, the latent period of the reflex process varies with the alteration of the strength of the stimulus far more than the latent period of the direct contraction. Very powerful stimuli usually bring about tetanic reflex processes, but at the same time even the weakest reflex processes have a considerably longer duration than direct contractions.

As soon as the two contractions are of approximately equal height, the difference of the latent periods constantly amounts to a very considerable quantity, more especially if we remain below the maximum of contraction. Only when we do so can we be at all certain that equality in the contractions means also equality in the excitations. Now with equal intensity of the excitations the velocity of transmission in the nerve remains unaltered. Hence it is only in the case specified, in which there is either an equal amount of contraction below the maximum or a bare attainment of the maximum, that we can be certain that the difference of the latent stimulations signifies the period required for the transmission of the stimulation inside the grey substance, or, as it may be called, the *reflex period*.

In order, then, to determine the absolute magnitude of the reflex period and of its variations with varying intensity of the stimulation, we need a careful graduation of the stimuli so as to secure in every single experiment perfect equality between the direct and reflex con-

tractions. In a normal condition of excitability of the spinal column this end must be attained by making in every instance the reflex stimulus stronger than the direct stimulus of the nerve. Now in all thoroughly successful experiments there shows itself *a diminution of the reflex period with an increase in the amount of the two contractions.* For example, whereas the height of the contractions rose from 1·5 to 4 millim., the reflex period fell from 0·027 to 0·015 sec. At the same time when the animal is in a normal condition the reflex period generally fluctuates within these two limits of time upwards and downwards. It seldom rises above 0·030 sec. except the excitability is in itself an abnormal one or is altered through poisons and other influences.

These differences between reflex and direct contraction correspond perfectly to the differences that are observable between two contractions effected through applications of a stimulus at points unequally removed from the muscle. In this case, too, the contraction produced by the more distant stimulus constantly manifests a retarded commencement and an increased duration, only it must be added that in the case of reflex contraction both differences are considerably increased. Thus we see that the influence exercised on the progress of the stimulation by the interpolation of the central grey substance is equivalent to the effect of a very long tract of nerve.

Finally, both these properties of reflex contraction—retarded commencement and increased duration—are closely related to one another. The greater the delay in the commencement of a reflex contraction the larger, as a rule, the increase in its duration. Accordingly reflex processes whose commencement is very greatly retarded have always in addition a tetanic character. On the other hand the converse is not always true: it is possible for reflex contractions to become tetanic without on this account commencing any later than in ordinary cases. It should be noted here that even the normal reflex process owing to its long duration stands on the boundary between contraction and tetanus. Now this tetanic character of reflex contraction may increase without the reflex conduction being retarded. On the other hand where the transmission of the excitation within the grey substance occupies an unusually long period, the duration of the excitation also is always more or less increased.

(2.) *Transverse Conduction:* In investigating this variety of reflex conduction we proceed according to the same principle as before with the single difference that the second contraction is produced through unilateral reflex, and not direct motor, excitation. It may be observed that stronger stimuli are requisite for the production of transverse and longitudinal than for that of unilateral reflex processes. If we choose for the two reflex processes to be compared stimuli of equal intensity, the two contractions will differ in the fact that the one arising through transverse excitation (*a*) commences later, (*b*) is smaller in amount, and (*c*) has a longer duration. If however the transverse reflex process is very weak, the latter difference disappears owing to the fact that weak contractions

commonly have a shorter duration. The retardation of the transverse reflex excitation in relation to the unilateral, fluctuates in general between 0·006 and 0·012 sec. Since however the transverse excitation is also the weaker, and weak excitations are always conducted more slowly in the nerve, this period cannot wholly be referred to the retardation produced by the grey substance. In order to isolate this element of retardation as far as possible, it is necessary to examine rather those reflex excitations in which the two stimuli are of different intensity and are so graduated that the amounts of the resulting contractions are equal, while at the same time (for reasons already given) they lie below the maximum limit of contraction. In experiments arranged in this way, the retardation reaches only from 0·004 to 0·006 sec. It will thus be seen that the retardation of transverse reflex excitation corresponds to from one-fourth to one-fifth of the unilateral reflex period as formerly determined. This retardation too is greatest in the case of feeble excitations, and diminishes with their intensity.

(3.) *Longitudinal Conduction:* In investigating this variety of reflex process, we compare the reflex contractions produced by stimulating two unilateral sensory nerves as far apart as possible in the column, as for example the nerves of a fore and hind leg of a frog (the brachialis and the ischiadicus). In this case the usual difference in the two contractions is the same as in that of unilateral and of transverse reflex excitation: the reflex process produced in the hind leg by stimulation of the higher nerve commences later and for the most part requires stronger stimuli. Nevertheless the amount of the difference is here subject to greater fluctuations than in the previous cases. Now it is very considerable, now it assumes a minimal and in rare instances even a negative value, the upper reflex process commencing somewhat earlier than the lower. Very probably these deviations proceed from the unequally rapid degeneration of the nerves or of the different regions of the spinal column.

(4.) *Influence of the Spinal Ganglia on Reflex Conduction:* It is found that the nerve roots are more excitable than the nerves below the spinal ganglia, much stronger stimuli being required in order to effect a reflex contraction through the latter. Further experiments show conclusively that the single condition of this difference consists in the interpolation of the spinal ganglia.

II.

(1.) *Influence of preceding Stimulations:* Every reflex excitation which does not last too long leaves behind it for a certain period a heightened reflex excitability. This is equally true whether the modifying and the testing stimuli act on the same fibres or whether they are applied to different fibres and even to such as enter the spinal column on different sides. This shows that the effect is not due to any modification of the sensory fibres. It can also be demonstrated that it does not depend on any change in the motor

fibres, for these are found to be at the time in a state of exhaustion. Thus the same reflex stimulus which exhausts the peripheral nerves increases the excitability of the central substance of the spinal column. The increase, however, gives place afterwards to a state of exhaustion, the interval depending on the animal's energy at the time. Further, even in the case of the peripheral nerves, stimulation is followed by a stage of increased excitability, only that here it disappears very rapidly and gives place to exhaustion. Thus the central substance differs from the peripheral fibres only in the mode of progress and duration of these changes.

(2.) *Influence of Temperature:* A considerable lowering of the bodily temperature produces if not unduly prolonged (*a*) an increase of reflex excitability, and (*b*) a retardation of the reflex processes, as manifested both in a later commencement and in a longer duration. These results correspond to those obtained by subjecting the peripheral nerves to the influence of low temperature. Shivering, it may be remarked, is but one manifestation of the increase of reflex excitability by cold.

(3.) *Toxic Effects:* The results of poisoning on the reflex process are found to be as follows: (*a*) Increase of reflex excitability (being greater and more lasting, the higher the animal's vitality), (*b*) gradual transition from reflex contraction to a condition of reflex tetanus (which occurs the more quickly the lower the animal's vitality), (*c*) increase of the reflex period, by which the ordinary duration is occasionally multiplied tenfold.

III.

(1.) *Interference of Reflex Stimuli:* By this is meant the simultaneous action of stimuli on different fibres springing from the spinal cord. The reflex process which occurs when a given sensory fibre is stimulated alone, is compared with that which ensues when the same fibre is stimulated during a permanent stimulation of another sensory fibre. The two fibres stimulated may be unilateral and of equal height, or bilateral, or of different height. In the first case there results in the majority of instances an increase of reflex excitation, though an inhibition may take place instead if the interfering stimulus is very weak or the vitality of the animal very high. Also in the other two cases we meet with both an increase and a diminution of reflex excitation, only that here the inhibitory effect is the more frequent. In all cases after the animal's energy has been exhausted, the effect of inhibition gives place to a more or less considerable mutual augmentation of the reflex processes. If we compare these results with those obtained by compounding different stimuli in the same peripheral nervous fibre, it becomes apparent that the augmentation of the reflex process by the interfering stimulus must be ascribed in part at least to the superposition of the molecular vibrations in the peripheral nerves. It is quite otherwise with the inhibitory effects, which differ *in toto* from those which present themselves as transitory phenomena in the peripheral

nerves. Consequently we must refer those effects of inhibition to the activity of the central substance. At the same time it must be borne in mind that the phenomenon of inhibition is not a specific property of the central organ but only presents itself here in a more striking form, in respect of amount and duration, than in the peripheral nerves.

(2.) *Influence of the Higher Nervous Centres:* Setschenow first observed that the stimulation of certain regions of the brain leads to a diminution of reflex excitability, and he inferred that these regions are special inhibitory organs. But as the difficulties of localising these central stimulations are so great, it is better to overlook any conclusions respecting the influence of particular parts of the brain on reflex excitation and to concentrate attention on certain general relations which seem to be discoverable in these observations.

It is found that, so long as the stimulation of the central parts leads to no visible external effect, its influence on a simultaneous reflex process is very uncertain, but, when manifestations of pain occur, this influence never fails to reveal itself. It shows itself either as an intensification or as an inhibition of the reflex process. The former occurs when the emotional movements engage the same muscles as are acted on in the reflex process, and consequently is the result of a summation of excitations. When the same muscles are not involved in the movements of pain, the effect on the reflex process is an inhibitory one.

Here then we have to do with a class of phenomena analogous to those of interference between the stimulations of different spinal sensory nerves. In the stimulation of the higher central regions, also, the intensification of the reflex process only presents itself when the stimulus acts on sensory nerve-fibres. Hence it may be inferred that in this latter case, no less than in the former, the augmentation of the reflex process results from a summation of stimulations. On the other hand we must suppose that whenever the conditions of such a summation do not exist, the excitation of any area of grey substance in which sensory nerves terminate (be they those of the spinal column or of the brain) has an inhibitory influence on the excitation of other and similar areas. This view should throw light on the well-known phenomenon that the reflex excitability of the spinal column increases when the brain is removed. So long as the brain is intact, there goes on, simultaneously with the stimulation of the spinal column as a reflex organ, a stimulation of those collections of grey substance in the brain in which the sensory fibres terminate. Now we have found in general that simultaneous stimulation of central regions in which centripetal fibres terminate has an inhibitory influence, provided the two reflex excitations do not become compounded in the same motor fibres. Thus one and the same peripheral stimulation, by producing excitations in different parts of the centres, may occasion an effect of inhibition.

IV.

We have found that excitations which have been conducted to the central substance can undergo in this region two opposite kinds of transformation. They can be either *inhibited* or *intensified*, and both changes are favoured by the circumstance that the central substance is already in a state of excitation. Hence there arises the question under what conditions the inhibition and the augmented excitation proceed from the interference of stimuli. This question immediately conducts us to another, namely, whether the two transformations proceed from different parts of the central substance. With respect to inhibition within the spinal column there are two regions in either of which we may suppose the inhibitory process to take place. Either the interfering stimulus may be conducted further in the posterior column, and so intersect the principal excitation immediately after its entrance into the grey substance, or, since according to the universal law of reflex conduction it enters the anterior cornua, it may effect the inhibition in a path which connects the motor central regions, that is to say, through central fibres lying between different portions of the anterior cornua. In a similar way we may conceive the inhibition which proceeds from the higher central regions, either as a process which is confined to the region where the sensory nerves end, or as one which passes out from motor centres in the brain to the points of origin of the motor spinal nerves. In the latter case the inhibitory process would be conducted by the same route as motor excitation. In support of this conclusion the fact might be quoted that the Will too is able to suppress movements. On the other hand, it should be observed that inhibition through the will may possibly be conducted by quite other paths than the voluntary excitation of the muscles. We may conceive the inhibitory operation of the will also as an *indirect* one, which is first of all directed to the region of the sensory nerve-terminations, and only produces the actual inhibition when setting out from these. There is, indeed, nothing unreasonable in the hypothesis that the will is capable of operating on sensory regions, since we constantly observe such an effect in the voluntary control of images of fancy and of memory. There is one observation which positively supports the view that inhibition is always a process which takes place between sensory central tracts, namely, the connection of the inhibition which proceeds from the higher central organs with the feeling of pain. To this must be added as a yet more decisive negative instance the

following fact. When different stimulations interfere with one another in motor fibres, an increase in the excitation is always observable. A similar augmentation also manifestly takes place when the same motor central point is set in a state of excitation by different fibres. Hence it is plain that sensory stimuli which are unilateral and act at the same height—that is, which operate most directly on the same motor centres—most easily cause an increased reflex excitation. Accordingly, it is without doubt the simplest supposition, and one which is most consonant with the facts, to refer the phenomenon of interference which occurs with two simultaneous sensory stimulations to a double reciprocal action—(*a*) to one taking place between the stimulated sensory central points by means of central fibres running between these, and attended with the external effect of *Inhibition;* and (*b*) to one taking place between motor central points, to which the sensory stimulation is transferred through a reflex process, by means of motor central fibres connecting these points, and attended with the external effect of a *Summation of excitations.* The influence of the will on reflex processes may be regarded as a case of this double action. For the will can either occasion an excitation of the same muscles which lie in the path of the direct reflex conduction, and so intensify the reflex movement, or react on the sensory central parts which produce simultaneously with the reflex process a feeling of pain, and thus inhibit the reflex process. In this way we arrive at a general understanding of the double consequence of an interfering sensory stimulation, namely, as a result of its double mode of conduction; that is to say, (*a*) of the transference to other sensory central parts, including those that enter into the reflex-path immediately under investigation, and (*b*) of the transference to centres of movement, among which again may be included those that are concerned in the reflex process.

Thus we arrive necessarily at the conception that the form of Interference depends on the mode of connection of the central structures. There must be fibrous connections of the cells which in a special manner conduct inhibitory effects, and these are according to all appearances the connections of the sensory cells. On the other hand there must be fibrous connections which subserve a summation of excitations, and these are plainly the connections of the motor cells. Since, however, the general laws of the physiology of nerves render improbable the supposition of a specific difference of the conducting fibres, we are left to seek the proper ground of the special form of inhibitory effect in the different *mode of termination* of the fibres within the central ganglion-cells. We must

assume on the one hand that the sensory fibres terminate in the sensory cells in such a way as to favour not only the extinction of the stimulation, but also the inhibition of other stimulations conducted to the same cells; on the other hand that the same fibres terminate in the motor cells in such a way as to promote a diffusion of the excitation, and as a consequence of this an augmentation of other excitations conducted to the same central structures.

It is obvious how we may connect this difference of the central cells with their physiological function. The sensory cells have, as we know, for their special function to receive stimuli, and to transform them into sensations; on the other hand the motor cells are those central points from which the external work done by the organism originally proceeds. We may further co-ordinate these conclusions with the conceptions derived from the general chemical statics of the organism. Recent biology teaches that the animal organism is not, as was formerly supposed, merely a seat of combustion, that is to say, of the formation of chemical compounds, or of the transformation of unstable into stable combinations, but that in it, as in plants, there takes place as well a process of decomposition, that is, transformation of stable into unstable and relatively complex combinations. More especially the nerve substance appears to be a seat of such decomposition, for some of the materials of nerve (as Lecithin) are more complex and more unstable combinations than the albuminous and fatty substances which the animal body absorbs in its nutriment. Now all external work, like the evolution of heat or muscular contraction, depends on a process of combustion, that is on the formation of stable compounds. Conversely, a process of decomposition cannot take place without a disappearance of external work. But, as a rule, external work is liberated in the motor central tracts and disappears in the sensory cells. This contrast, however, does not hold good as a universal law. For example, reflected sensation is a phenomenon which, without doubt, involves a diffusion of excitation among sensory central parts: on the other hand the fact that the stimulation of a motor fibre never passes beyond its original cell in a centripetal direction may be best explained as a result of inhibition which possibly has its basis in the particular form of termination of the motor fibres within the anterior cornua. In this way we reach the conclusion that in every ganglion-cell there take place simultaneously processes of combustion, resulting in external work, and processes of decomposition in which external work disappears. In the sensory cells, however, the process of decomposition pre-

dominates; in the motor cells the formation of stable combinations. In the former, therefore, we observe a disappearance of external work, and, whenever the function of the cells is raised through external stimuli, an inhibitory effect on the work done by other central structures standing in close connection therewith. In the motor cells, on the contrary, we see work produced, and every stimulus which is conducted to these by the appropriate paths adds to the amount of this external work. We thus find in these mechanical properties a basis provided for the two functions of the central nervous system, of chief importance for psychology, without needing to have recourse to the old doctrine of the *specific energy* of the central parts, a doctrine which equally contradicts the facts of the physics of nerve and those of anatomy. These two fundamental functions of the nervous system are, first, the reception of external impressions and the transformation of the same into a latent condition in sensation, and, secondly, the conversion of stored-up into external work in the reflex and voluntary movements.

V.

According to the older modes of conception, Consciousness is a domain of phenomena into which the validity of general laws of nature does not extend. Thus the voluntary actions of man are withdrawn from the causal connection of external nature just because they spring out of psychological motives. In entertaining this view writers have become involved in a contradiction with a postulate supplied by that most general law of nature on which we have been constantly obliged to take our stand in the foregoing investigations, namely, the principle of Conservation of Energy. If this principle lays claim to a universal validity, we cannot withdraw from it those movements which we are conscious of only as psychologically caused. Assuming that the principle has in reality the universal validity ascribed to it by natural science, there present themselves in connection with the whole domain of the psychophysical vital actions of man two problems for scientific investigation. In the first place these phenomena must be referred to their *psychological* causes, in the second place we must determine the external causal connection out of which they arise as *physiological* processes.

We must, no doubt, bear in mind that the principle of the Conservation of Energy has to do only with motor forces, and that consequently the movements which proceed from psychological causes are subject to this principle only so far as they

are *external*. The internal or psychological causation of our mental states cannot be touched directly by a law which only has reference to masses and their reciprocal action. Thus it would be futile to seek to apply this law to the synthesis of compound perceptions out of simple sensations, or to the association of ideas, or to the determination of the will, that is to say, to the principal instances of psychological causation. At the same time, as soon as these internal mental states lead to external movements, these latter fall under this principle. Hence arises the important psychological postulate, *that the internal causation of our mental states, and the external causation of our movements can never conflict with one another.* Every movement which has an internal cause (*e.g.* in conscious motives) necessarily has an external cause as well. It is certain that Leibniz had a lively appreciation of the necessity of such a connection when he put forward his doctrine of a Pre-established Harmony. But since he was entangled in the old metaphysical prejudice which split up man into two different beings, a material and a spiritual, he was only able to conceive this connection as a constant miracle. It is precisely this unavoidable corollary of Dualism which makes the hypothesis scientifically impossible.

The postulate that external and internal causality can never conflict in their results leads to two further demands of wide scientific consequence as soon as we admit that the connection of the physiological and the psychological mechanism is only conceivable from the point of view of Monism. In the first place the internal causation must be just as stable and invariable as the external; in the second place we must be able to show for every member of the internal causal chain a corresponding member of the external causal chain, namely, the physiological processes of innervation. It may happen that in certain stages of our investigations only the one or the other side of the event is open to observation; but a real solution of the problem is in every case attained only when we succeed in exhibiting both series of phenomena in their mutual penetration. In point of fact the whole of recent psychology is pervaded with a disposition to satisfy this postulate, and every step which it takes in this direction transforms the bare postulate into the actual proof of a complete parallelism between the internal and the external phenomenon.

In this manner the formation of complex perceptions out of simple sensations presents itself on one side as an operation of psychological synthesis, in which there is manifested a general property of our consciousness, namely, the tendency to fuse simultaneous sensations, and to arrange related sensations

according to their intensity and strength. The same processes, however, are seen to repose on a connection between impressions of sense and movements, which connection has its basis entirely in the physiological properties of the organs of sense and of their nervous centres.

A similar example of the regular concomitance of psychological and physiological processes is afforded by mental association, which again forms the foundation of a host of complicated psychological operations. As is well known, the psychologist distinguishes four so-called Laws of Association. According to the first *similar* mental states attach themselves to one another; according to the second *contrasting* states of consciousness sometimes enter into connection; according to the third presentations awake one another which stand in a *spatial* relation one to another; according to the fourth mental states which follow one another in *time* tend to re-enter consciousness in succession. Upon a closer consideration of these laws it becomes apparent that they can be simplified by subsuming each pair under *one* law. Similarity and Contrast may both be regarded as a principle of the *internal* connection of mental states. In this way the apparent opposition between the two disappears. The connection through Contrast just as much produces a *completion* of the first mental state by means of the second as the connection through similarity. But the fact that under certain circumstances contrasting states are able to supplement one another is to be explained by the other fact, that every presentation or idea is accompanied by a *feeling* of greater or less intensity. Now it is a peculiarity of feeling to move between extremes; consequently a feeling readily reproduces its contrast, more especially as our consciousness does not admit of monotonously continuous feelings, but can only preserve its elasticity through a certain change of feelings. In fact it is evident upon closer examination, that all cases of change of presentations which can be brought under the principle of contrast are characterised by the accompaniment of lively feelings. Thus, for example, hunger, fatigue &c. are disagreeable feelings, and as a consequence easily call up presentations which are accompanied with opposite feelings. In opposition to the law of the internal connection of mental states, Co-existence and Succession may be conceived as a principle of *external* connection. For space and time are the two external forms in which all our presentations move, and in which, therefore, they must also be connected.

But as on the one side the processes of association may be thus derived from the nature of our mental states and from the psychological forms of space and time to which they are sub-

jected, so on the other side they can be regarded as necessarily conditioned by the laws of central innervation. It is a fundamental law of the central functions that an excitation follows a definite path the more easily the more frequently it has already traversed the same, and that different excitations combine so much the more readily the oftener they have already been connected. The phenomena of concomitant movement (*Mitbewegungen*) as well as the facts of physiological exercise and habit everywhere afford us confirmations of these truths. In this sense we may say: association is nothing more than the internal psychological image of a similar process which presents itself externally in concomitant movement. Just as in this last it is sometimes a group of muscles lying near the group directly set in motion, for example, in the movements of the third with the second or middle finger, at other times a group of muscles which has often acted in a common function, as for example in the customary movements of the arms during walking, so we find associated sometimes those presentations which have a certain affinity and whose excitations correspond to similar regions of the brain, sometimes those which are connected through space and time and whose excitations therefore have spread simultaneously or successively over different regions of the brain. In the phenomenon of increase of excitability through previous stimulation, as described in an earlier part of this paper, we have before us, so to speak, the most elementary form of this whole chain of phenomena. Indeed, it is to be expected that with every presentation called up through an external impression of sense an eddy of associations would be excited in us, were not the processes of inhibition in the central substance an effective means of limiting the diffusion of the excitations. In the rush of ideas which characterises insanity, it looks as if the brain were in a condition of unchecked excitation similar to that which is produced in the spinal column by certain toxic operations, this state being always followed, as we have seen, by a rapid exhaustion of nervous energy.

There is indeed one department of man's vital actions in which only fragments both of the internal and of the external causation are accessible to observation, and this is the highest manifestation of life—the sphere of conscious voluntary actions. Psychological causation presents itself here in the form of motives of volition. But of these motives only a few are present to consciousness, owing to its limited nature. Even in the most favourable instance all the motives cannot be accessible to our reflection, because only a part of these are acquired by us ourselves, the remainder resting on the innate

and inherited properties of our consciousness. The general direction which these properties give to our volitions is named our *character*. In the fact that we recognise voluntary action as the immediate outcome of our character, consists our free-will. This, even when regarded from the psychological side, is by no means a contradiction of causality, but rather is that special form of psychological causation which manifests itself in our conscious actions. We are responsible for our actions because character is the object of moral judgment; but we form our conclusions respecting the character from the voluntary actions.

Action, however, is only one side of the manifestation of will. Parallel to this there is the influence of the will on the current of our thoughts. Here the will follows associations as its immediate determinants, though here too no less than in actions it is guided by the whole nature of consciousness, as depending on original dispositions and past experience. It is the will that first brings about *ordered thought*, which is an internal measure of character, just as action is an external. Moreover the voluntary control of our ideas reacts powerfully on our voluntary conduct, for the motives of the latter are, it is obvious, present to consciousness in the form of representations.

Indeed, not only the psychological but also the physiological causation of our voluntary actions is in its precise nature inaccessible to direct proof. As in dealing with the former we are obliged to content ourselves with understanding single threads of the causal process under the form of motives, so in considering the latter we have to satisfy ourselves with the conclusion that in the nature of the nervous centres we have a means of conceiving in general a causal connection of physiological processes separated through immeasurably long intervals. On the one side the central substance is clearly a mighty reservoir of potential energy, and on the other side it shows itself in an extraordinary measure disposed to undergo continual change through processes taking place in it, and thereby to accumulate dispositions for future processes of excitation. Thus here too we are led to that conception which is the highest metaphysical outcome of psychology in our day, namely, that man has the two attributes of natural object and spiritual being not in any juxtaposition but as wholly involved with one another—as different sides of the one and indivisible human existence.

W. Wundt.

III.—MR. SIDGWICK'S *METHODS OF ETHICS*.*

In introducing this work, the author is careful to tell us what he does *not* mean to do. He is not to give the psychology of Ethics; he is not to give its practical precepts; he is not to give its history. What he *is* to do is to discuss the *methods* of Ethics; meaning by that the different grounds assigned for the maxims or precepts of morality. In short, he is to pave the way for Practical Ethics.

The First Book is prefatory. An introductory chapter gives the scope of the whole inquiry. Ethics being the study of what ought to be done, so far as this depends on the voluntary action of individuals, its fundamental assumption is, that there is in any given circumstances some one thing that ought to be done, and that this can be known. The selected question so often discussed (the nature of the Moral Faculty) as to how we come to know what ought to be done, is really of secondary importance. Now this word "ought" points to an *end* that is desired; and the end determines the means. Moral rules are the means to some end, and as we wish the end we use the means. But the moral end may be differently assigned. For example, one may hold that all the rules of conduct prescribed by men to one another, *as moral rules*, are means to the happiness of the community. The ethical agent is supposed to be impelled to this end, and being so he follows the rules that are instrumental to realising it. The reason or motive for the adoption of the end is, however, a different thing from the suitability of the means to the end. There might be a science that would deal with this last department by itself, which might be termed the science of *Eudemonics;* a science convertible into Ethics by adopting happiness as the end absolutely prescribed.

The methods of Ethics will be as various as its ends. The ends, however, are speedily reduced to two, namely, (1) Happiness and (2) Perfection or Excellence. But these ends may be sought for all men universally, or by each individual for himself. There will thus emerge four methods. A fifth is brought to light by the circumstance that the *end* is sometimes dropped into the background, and certain *rules* absolutely prescribed as First Principles that are self-supporting. Such a system is

* *The Methods of Ethics.* By Henry Sidgwick, M.A., Lecturer and late Fellow of Trinity College, Cambridge. London: Macmillan & Co. 1874.

expressed by Independent and Intuitive Morality; it is the view of Butler, and of the Common Sense school generally.

Five possible Methods then seem to claim attention; but two of them can be set aside at once—those relating to Perfection. For, as regards *universal* Perfection, there is no claim put in by any school of moralists; and Perfection as applied to the individual is not distinguishable as a system from conformity to absolute rules, or the Intuitive Morality. Consequently there are three alternatives. The system of no-end may be called, once for all, Intuitionism. The two Happiness-systems are both designated by the name "Utilitarianism," but improperly; for the founders and supporters of that view conceived it under the aspect of universal or collective happiness. Still we may formulate a self-regarding Utilitarianism, and contrast it with a benevolent Utilitarianism; the two to be called respectively "Egoistic" and "Universalistic" Hedonism. The names are somewhat hard, but justifiable in the circumstances. Of these three systems, Mr. Sidgwick undertakes to give an exhaustive discussion.

Another preparatory clearance is to state the relationship between Morality and Law or Politics. The upshot is, that morality must be viewed with reference to actual society and actual arrangements, and not with reference to ideals, utopias, or latter-day societies.

It is needful also to understand the incongruous phrase, "Moral Reason." The proper meaning of "reason" is the apprehending of truth in matters of knowledge which alone are true or false. But in regard to reason, there are certain subtle acceptations that enter into conduct, and give a plausibility to the expression—moral or practical reason. In all systems there is assumed an intuitive operation of the practical reason in the determination of ends, as well as of means; doing what is right is conceived and expressed also as doing what is reasonable.

The fourth chapter is on Pleasure and Desire, and expounds the author's view as to the object of Desire, which he contends may be, and often is, something indifferent. I have commented on this view in another place (*The Emotions and the Will*, 3rd edit., p. 436). The conclusion is immaterial for the writer's main purpose.

Of his next chapter, on Free-will, I have the same remark to make. In the work cited (p. 493) I have given my reasons for questioning his libertarian arguments; but they are not such as to affect his ethical doctrines. The mysterious puzzle of Free-will is often supposed to have ethical bearings, accord-

ing to the side we take. Mr. Sidgwick does not think so. He recognises one aspect of the Will as coming forward in Ethics, especially in connection with good or ill desert, namely, the difference between the morally well-trained and the morally ill-trained will; the one, virtuous with ease; and the other, virtuous, if at all, with difficulty. But this does not involve the dead-lock of Free-will. As a well-reasoned polemic, out of the direct line of the work, upon the perdurable debate on the Will, I commend the chapter to whoever is interested in the theme. It has all the author's good qualities as a reasoner, which I shall have occasion to exemplify as we proceed.

Returning from these half-needful digressions, Mr. Sidgwick has to express more fully the character of the three alternative Ethical Methods. He shows that what seem to be additional methods, as for example, "God's Will" and "Conformity to Nature" resolve themselves into one or other of the three. He meets an objection from another side, to the effect, that *two* methods would express the actual varieties of opinion; namely, one that makes *virtue* the end of human action, and one that makes *pleasure* the end. This would confound what we are especially called upon to keep separate—Egoism and Altruism; pleasure for self, and pleasure for others. Practically, the commonplace man is a mixture of both impulses; it is easier "to move in a sort of diagonal between egoistic and universalistic hedonism, than to be a consistent adherent of either." In fact, the great outcome of the author's exposition, as we shall see, is to show a much closer alliance between Utilitarianism and Intuitionism than between the two forms of Hedonism. To separate these two motives, in spite of their constant entanglement, is what puts the greatest strain upon the ethical theoriser.

Egoism has been carefully defined so as to be rescued from the vagueness attaching to the allied notion Self-love, which admits of interpretations not properly egoistic. It is to be stated as "the sum of pleasures valued according to their pleasantness;" while at a subsequent stage will be considered the means of arriving at this interesting summation.

Intuitionism has next to be cleared of confusing admixtures, a still more serious business. It is a method that "prescribes certain actions to be done without regard to their consequences." Something in the act itself carries us irresistibly to the conclusion that it is a right or a wrong act; we are moved to pay a debt from the self-evident propriety of the action, and not because of the pleasure that we bestow upon our creditor. This naked statement may put on various garbs, which the

author indicates, and which are distinct logically and historically. I do not stop to describe them farther than they are suggested by his designations—(1) Perceptional or Instinctive, (2) Dogmatic (with a basis of general rules), (3) Rational or Philosophical (giving some reasons for the rules), to which special reference must be made at a later stage.

Another vague word that afflicts the ethical controversialist is the "Good," given as the ethical end. The common interpretation of this word does not allow an identification with pleasure, and therefore the doctrine that sets it up would not be Hedonism, least of all Egoistic Hedonism. There is rather the notion of contributing to the excellence or perfection of conscious life, which is a form of Intuitionism. The author here introduces a criticism of the Good, or the *summum bonum*, in the ancient systems. It would interest the reader to compare Mr. Grote's exposition of the radical defectiveness of the ancient point of view in giving a self-regarding turn to the ethical end, in which society is really the party concerned (*Ethical Fragments*, Essay III.).

The Second Book is devoted to Egoism. The notion, purified of vagueness, represents solely the pursuit by each individual of his own greatest happiness, and that by a direct aim. And happiness shall be taken purely as the surplus of pleasurable over painful consciousness. Supposed distinctions in the *quality* of pleasures are to be done away with, by resolution into differences in amount or quantity alone. A man's mode of getting at his greatest happiness may not always be the same; he may simply take what pleasures are within his reach, or he may institute a computation of the pleasures and pains likely to follow a given course of action. Or he may by a deductive argument satisfy himself that virtue is the way to happiness; taking honesty as the best policy. Or he may have a theory that the maintenance of health is the surest road to happiness. But, under every view, he must appeal to his own consciousness as the final criterion of pleasure and pain. So that, in fact, the natural method of Egoistic Hedonism is reflecting on one's pleasures and pains, with comparison and estimate of their respective amounts. To this method the author applies the designation "Empirical Hedonism."

The method thus designated is neither more nor less than the inquiry into the relative values of human pleasures and pains. In connecting it with a theory of moral ends that is at last to be pronounced untenable, the author does not insinuate that it is a mean and unnecessary inquiry. On the contrary, it stands out as equally indispensable for the more worthy

conception of ethical right and wrong that is to emerge as the conclusion of the whole inquiry. The first attempt by an ethical philosopher to provide an exhaustive survey and computation of pleasures and pains, was that made by Bentham as a part of his Utilitarian theory, which was not egoistic but universalistic hedonism.

That pleasures and pains should be calculable is an assumption necessary to all rational pursuit, whether self-seeking or philanthropic. If human life is not a game of blind man's buff, we ought to be aware of the difference between one pleasure and another, if there be any difference. If the pleasures purchasable by £300 a year do not exceed those attainable by half the sum, while the pains of earning the larger sum are undoubtedly greater, every sane man would stop at the smaller figure. So, it would be unnecessary, in showing good-will to a relation or a friend, to bestow what is needless for happiness.

Pleasures and pains obviously differ in degree; and we are conscious of the difference. There is, in both, a scale of degree, beginning at a "hedonistic zero," and rising to the maximum of known pleasure or pain. The fundamental assumption of Hedonism is that pleasures are to be preferred and pains to be shunned, in proportion to their degree or amount. No other distinction is to be considered under this system. Quality, elevation, refinement must either condescend to be computed on the score of intensity, or be rejected as belonging to another scheme of life, and not to hedonism.

But now is the calculation practicable or possible? We must face all the difficulties, for hedonism, whether egoistic or universalistic, stands or falls upon it. Mr. Sidgwick does not blink these difficulties, nor indeed any other difficulties.

It may be all very well to compare two recent pleasures or pains, as in testing wines or perfumes, or the tone of an instrument; but when the experiences are past, we must trust our memory, and this is not very faithful as regards pleasures and pains. It is from recollections of the past that we must conceive the future, and those recollections have often to be shaped by the constructive imagination into new forms and groupings — a very uncertain process. Then, for many situations that have to be hedonistically valued, we have no experience of our own, and must depend upon other persons; and these other persons, besides being unfaithful in representing their experience, may not be constituted as we are, and therefore no fair criterion of what we shall feel when we come into the situation supposed.

The difficulties thus appear to thicken upon us at every step. Even at the first stage, the estimation of our own experienced pleasures, Mr. Sidgwick seems to think that when they are different in kind, as in comparing the sensual, the æsthetic, and the intellectual, our faculty of discrimination and valuation is non-plussed. So when we compare an unmixed pleasure with one that has an ingredient of pain, he thinks that we are easily thrown out of our reckoning. This I take to be true of a careless observer; but if the comparison were conducted in earnest, the supposed difficulties might, I think, be overcome. But then, continues Mr. Sidgwick, we are liable to the working of bias in various ways. Thus, in looking back upon our hardships, evils and anxieties, we are apt to underrate them. The remedy here must be the same as for any other known bias; we should learn to allow for it. Then, again, in the pressure of some actual misery we crave for its opposite, without taking account of attendant evils. When overworked, we crave for inaction, and forget the *ennui* of idleness.

The trust in other people's experiences is obviously dangerous, until we can allow for differences of character. But a worse uncertainty remains. Our own character may be changing, and passing into a phase that we cannot now estimate. In point of fact, however, this is the previous difficulty; for we must interrogate persons that have come into the same phase, and be guided by them. The most subtle form of the uncertainty is in trying to compute what will be the result of a particular discipline or education, whether to heighten a pleasure-giving taste, or to harden ourselves against a pain.

These are grave obstacles in our hedonistic path. There are others of a more factitious sort, as the supposed dulling tendency of self-consciousness; any cognitive effort being a damper to the pleasurable flame. Then there is the paradox of Desire—that in order to succeed in a thing you should set your aim at some different thing. For my own part, I do not set much store by these difficulties, and Mr. Sidgwick has no wish to exaggerate them.

It is at this point of Mr. Sidgwick's exposition that I first open critical fire. I thoroughly concur with him as to the necessity of a hedonistic calculation, and I admit all the difficulties that he sets forth. I think, however, that an additional chapter would have been well bestowed upon the ways and means of meeting those difficulties, or else of lightening their pressure. The motive that urges me in this suggestion is not mere asking-for-more. The author has put

into his volume a sufficient amount of good matter to make it one of the best volumes of the present generation. It is rather because Utilitarian Ethics does not get justice, if identified with the problem of calculating the vast total of human pleasures and pains of every sort and degree. An opponent can maintain with reason that such a task is impossible; and a system that supposes it, is liable to be thrown overboard as a chimerical idea.

I can imagine various ways of so far mitigating the difficulties as to bring the operation within the limits of possibility. When so much ingenuity has been spent in calculating the lunar and planetary perturbations, something might be done to simplify the problem of the perturbations of the human breast. Without losing sight of the benefits of physical science, we may say that a good hedonistic calculation has more to do with our welfare than the Transit of Venus. A "Science Commission" might well be issued in consideration of the backwardness of subjective research, and the serious consequences flowing therefrom. When we have a hedonistic calculus, with its senior wranglers, we shall begin to know whether society admits of being profitably reconstructed.

To exemplify the possible simplifications of the hedonistic problem, I will mention first the device of studying separately the side of *pain*. The removal of pains is in many respects a distinct department, and could be rendered remarkably definite. Not only does the protection from pain grow out of special appliances, but it occupies the largest portion of our endeavours and resources. If we could only keep free from pains, if our burdens and obligations were within our strength, the system would respond to pleasure without the necessity for numerous stimulants. But, as regards Ethics, the greatest consideration remains; protection from pain is the chief thing sought by moral restraints and enactments. Morality does not cater for men's pleasures, it only secures them from molestation in pursuing pleasures for themselves.

Another device of simplification would be a felicitous concentration of the main sources of pleasure, the result of a good classification of our sensibilities. Various modes might be tried; but it is clear that the *social* feelings would be one leading group.

I can suppose various other considerations that would come in to facilitate the labours of the hedonist, but what I lay especial stress upon, is the *limitation of the province of Ethics*. For although pretexts may be made for bringing into the

Ethical problem every possible pleasure and pain, we may, I think, satisfy ourselves that *security* and not happiness is the chief end of the rules of Ethics; *being* rather than well-being. I have already maintained this view in various places, and I will not argue it farther until I am met by some arguments on the other side.

Mr. Sidgwick, after setting forth against himself the almost insuperable vastness of the hedonistic computation, turns round and asks the pertinent question—whether Common Sense has found an easy way, a royal road. He finds that the moral judgments of Common Sense are indeed perplexing and inconsistent, but are still worthy of being attended to, in the absence of anything better. The tendency is to exaggerate the evils attending our worldly advantages, such as wealth, power, fame; notwithstanding that there is something to be said for that view. I believe, however, that the best corrective to this excess, would be to study the *pains* removed by these advantages; to look at the exemptions of the rich man, in comparison with the poor.

The succeeding chapter is one of vital interest. It faces the question, so often shirked, Does Duty coincide with Happiness? The author allows no ambiguity, evasion, or subterfuge to stand between him and the unwelcome conclusion, that Duty does *not* coincide with Happiness. He tries the point, first upon the Legal Sanctions of Morality, and shows that they are not always sufficient to render immoral conduct also imprudent. Next the Social Sanctions, blame and praise, fail in nearly the same ways, and also in ways of their own, as when society is divided on the guilt of a particular line of action. Farther, whereas the reciprocity of virtuous conduct goes a considerable length in re-imbursing the virtuous agent, yet the way that this reciprocity works is to stint the virtuous motives by comparing them to profitable investments. Turning to the satisfaction of a good conscience and the pains of remorse, the author is equally constrained to pronounce against the unqualified coincidence of Happiness and Duty.

This of course disposes of Egoism, as a basis of Morals; it is a sufficient refutation of any Selfish System. Before concluding, however, the author examines another attempt to fix the route to the greatest happiness, namely, the adjustment of our impulses and faculties to our surroundings, physical and social—a view expounded by Mr. Herbert Spencer. No doubt a perfect correspondence between all our wishes or impulses and the society that we live amongst, would make for our greatest happiness, as well as bring about a coincidence

between happiness and duty. But after a full examination, which I cannot here trace, Mr. Sidgwick is obliged to conclude that the method is, after all, simple empiricism.

The Third Book, occupying nearly half the volume, is the author's greatest achievement; it is the examination of INTUITIONISM. Many writers have pointed out that the morality of Common Sense, in other words, the moral sentiment, is, in the main, Utility. But although numerous telling examples have been cited in support of this view, there was still wanting an exhaustive demonstration; and this is now provided. Both the general fact and the exceptions are set forth in satisfying detail.

I shall indicate briefly the author's mode of proceeding. As usual, he clears the way by settling the meanings of terms, a perpetual necessity in Ethics. The fundamental assumption of Intuitionism is that we see at once what actions are in themselves right and reasonable. But it is said by some that *dispositions* or *motives*, and not actions, are what we judge to be right or wrong. This does not survive the author's scrutiny. Moreover, rightness is not absolute or objective, but dependent or subjective; it is what the agent *believes* to be right. Any bias that he may have in his own favour is cured by the generalising test—Would this be right for any other person placed in the same circumstances? This, the formal test of Kant, Mr. Sidgwick remarks, is like the Formal part of Logic; it must be complied with, but it does not give a complete criterion of Duty. He farther observes that the Existence of moral intuitions is not to be confounded with their Origin, nor with their Validity. Whether they are instincts or growths, is nothing to the purpose; although he thinks that the supposition of growth is the most favourable to their value, as the wisdom of the man ought to be greater than the wisdom of the infant.

The first important question to be settled is whether the intuitive moral decisions are universal or individual. Do we judge in each case, with or without reference to a rule or general principle? To this the answer must be that, in the decisions of the intuitive moral faculty, reference to general maxims is usual and admitted. In fact, there exists, in a formulated shape, a body of current maxims imposed by the community on each individual; which body of maxims may be regarded as the Positive Morality or the Moral Code of the community. These maxims are what have to be scrutinised, in the attempt to discover the real ethical end, the foundation of moral duty. On looking into those current notions, the first thing to strike us is their want of clearness. Indeed under

them, opposite judgments may be formed upon one and the same case; a proof that they must be indefinite and elastic to a degree.

After some remarks on the distinction between Duty and Virtue, Mr. Sidgwick commences his detailed examination of the Common Sense Moral Code. Without laying great stress upon any one order in classing the duties, he opens with what are called Intellectual Virtues. Of old, Wisdom, Practical Wisdom, had a front rank among the virtues; "but its precise relation to the other virtues was a continual source of perplexity, so that even the thought of Aristotle loses it usual analytic clearness on this subject." As an excellence of the intellect, Wisdom would mean the right selection of means to ends; but it may also mean the proper selection of ends. The wise man that is an object of moral praise is he that selects good or moral ends. It also includes a right condition of the Will, for we must not merely choose well, but must carry our choice into effect. The consideration of this aggregate mental excellence does not, however, aid us in the present inquiry.

The virtues that will bring Intuitionism to the proof are—Benevolence, Justice, Truth; and the author's examination of all the three is most elaborate, and goes far to supersede every previous analysis.

Take first Benevolence. As with other ethical terms, the word has a clustered meaning. As commonly stated, it combines the emotion of love with active services to our fellow-creatures. The emotion or affection is not under the control of the will, except as to its being cultivated; so that the part that chiefly belongs to duty is doing service to others, or promoting the happiness of others. But now, in seeking for a more definite guidance, we ask whether it is the *happiness* or the *virtue* of our neighbour that we are chiefly to promote. Farther, we ask *who* are the most proper recipients of our favour; for example, whether human beings alone, or the lower animals as well. This point Common Sense does not precisely determine. More important is it to determine how our benevolence ought to be distributed among our fellow-men. In the Utilitarian view, we are to seek the happiness of men generally, but are to apply our strength where it will operate to most advantage, namely, by promoting the happiness of such as come within our sphere. Common Sense recognises certain individuals as more nearly related to us, and enjoins that our kindness shall be regulated by the proximity of the relationship. But now starts up a perplexity from considering that many of those kindnesses are in requital for benefits received, thereby converting Benevolence into

Justice. So that to get at an open career for benevolence, we must find a region where the services are not of debt. Then comes the case of Affection, and the question whether it is duty and virtue simply to follow out affectionate promptings; or, in order to be virtuous, must we work where we have no affection, like Howard for criminals? Other questions are put equally puzzling to Common Sense Ethics; and the author is driven to confess that he cannot, by reflecting on common sense, elicit clear and definite principles for determining the right distribution of kindness. He goes exhaustively through the duties: Duties of Involuntary Relationships—Kindred, Neighbourhood, Citizenship; Duties of Voluntary Relations, as Friendship; Duties springing from services received—Gratitude; Duties to special need—Pity. The conclusion is the same for all: "While we find a number of broad and more or less indefinite rules laid down by Common Sense in this department of duty, it is difficult or impossible to state even the most certain of these with such clearness and precision as would enable us to determine exactly the extent of duty in any case."

The author's handling of Justice is in like manner thorough and masterly. The results he sums up thus:—

"The prominent element in Justice as ordinarily conceived is a kind of Equality; that is, Impartiality in the observance or enforcement of certain general rules allotting good or evil to individuals. But when we have clearly distinguished this element, we see that the definition of the virtue required for practical guidance is left obviously incomplete. Inquiring further for the right general principles of distribution, we find that our common notion of Justice includes—besides the principle of Reparation for injury—two quite distinct and divergent elements. The one, which we may call Conservative Justice, is realised (1) in the observance of Law and Contracts and definite understandings, and in the enforcement of such penalties for the violations of these as have been properly announced and generally accepted; and (2) in the fulfilment of natural and normal expectations. This latter obligation, however, is of a somewhat indefinite kind. But the other element, which we have called Ideal Justice, is still more difficult to define; for there seems to be two quite distinct conceptions of it, embodied respectively in what we have called the Individualistic and the Socialistic Ideals of a political community. The first of these takes the realisation of Freedom as the ultimate end and standard of right social relations; but on examining it closer, we find that the notion of Freedom will not give a practicable basis for social construction without certain arbitrary definitions and limitations: and even if we admit these, still a society in which Freedom is realised, as far as is feasible, does not completely

suit our sense of Justice. *Primâ facie*, this is more satisfied by the Socialistic Ideal of Distribution, founded on the principle of requiting Desert; but when we try to make this principle precise, we find ourselves again involved in grave difficulties: and similar perplexities beset the development of Criminal Justice on the same principle.

"Ideal Justice, therefore, is very difficult to delineate, even in outline; for if we cannot work out satisfactorily either of these two conceptions, it is still harder to make a satisfactory combination of the two; and yet difficult altogether to discard either. And we are farther perplexed when we try to reconcile either with Conservative Justice. For both in public and in private affairs it is often questioned how far the natural expectations of comparatively undeserving persons ought to interfere with Distribution according to Desert; and, again, how far such expectations, if not founded on definite contract, ought to hamper the Freedom of others. To such questions our attempt to define the common-sense notion of Justice does not seem to furnish an answer."

In a chapter entitled "Laws and Promises," Mr. Sidgwick dwells on the duties of obedience to authority, which common sense requires, but does not free from uncertainties. There is the conflict between usurped and rightful authority, which is solved only by a reference to Utility. The subject of Good Faith or Fidelity to Promises gives a fine opportunity of showing how thoroughly at fault is the monitor within the breast, if unassisted by the utilitarian monitor. The author unfolds, with remorseless completeness, the critical situations that baffle the inward sense, and is of course obliged to sum up once more against its pretensions.

The duty of Truth seems at first sight the clearest case of all for the Intuitionist. But only at first sight. Common Sense has allowed a number of grave exceptions to the absolute claims of Truth, and is obliged to go to Utility to hold the license in check.

The restraining of Malevolent Impulses is often laid down as an absolute duty, but this is not consistently adhered to; for we must punish and retaliate injuries in the interests of society; and the consideration of those interests, that is, Utility, must be our guiding star.

The Self-regarding Virtues are next considered—Temperance and Purity. As strictly self-regarding, Temperance is regulated by the calculations of Egoistic Hedonism. Common Sense, however, interferes so far as to demand a certain abstemious restraint, but when we ask where the line of indulgence is to be drawn, the answer fluctuates; some would put it at the maintenance of health, others would allow a little

indulgence for society's sake. So in Chastity and Purity: the gratifying of the sexual appetite, even in the marriage relation, has had strict limits imposed on it by the ascetic moralists, as, for example, the procreating of children. But this is mostly theory.

After touching on the common sense views of Courage and Humility, the author is prepared for a summary of the whole case. He lays down, with ominous rigour, the conditions that he expects in an Ethical first principle—the terms precise, each proposition really self-evident, the different propositions mutually consistent, universal acceptance. Reviewing all the duties above detailed, he inquires whether the maxims in each case comply with these four conditions. The flaws that come to view are such as—reasoning in a circle, incurable indefiniteness, aversion to explicitness. At the same time he guards himself against supposing that he has subjected all the moral duties to an utterly destructive analysis.

"The notions of Benevolence, Justice, Good Faith, Veracity, Purity, &c., are not emptied of significance for us, because we have found it impossible to define them with precision. The main part of the conduct prescribed under each notion is sufficiently clear; and the general rule prescribing it does not lose its force, because there is in each case a margin of conduct involved in obscurity and perplexity, or because the rule does not, on examination, appear to be absolute and independent. In short, the Morality of Common Sense remains perfectly adequate to give practical guidance to common people in common circumstances; but the attempt to elevate it into a system of scientific Ethics brings its inevitable imperfections into prominence without helping to remove them."

Next is a chapter on the moral judgments we pass on Motives; as when we assign to some motives a higher moral rank than others, and declare that in presence of a superior an inferior must give way. He treats of the difficulties attending this view, in an argument with Mr. Martineau, and concludes that no method of deciding moral questions can be founded on it.

He now passes to the inquiry whether there be any philosophic handling of Intuitionism such as to elevate it to the position of a science. He goes back to the historical systems, as embodied in the moral philosophy of ancient and modern times. Stating in words the two cardinal virtues—Wisdom and Temperance—he finds them to be mere tautology. And even in approaching the great names of Plato and Aristotle, with all their valuable thought, he declares their method stricken with the same incurable defect. He exemplifies this

in Aristotle's definition of the Good. Stoicism also is circular in its reasoning. The Stoical formula (Life according to Nature) is adopted by Butler, and in his hands it still bends into the old circle: "it is reasonable to live according to Nature, and it is natural to live according to Reason."

From the circular vice, he excepts only Clarke and Kant. Clarke has two principles—Equity and Love or Benevolence, and neither of them is tautological. The rule of Equity (the Golden Rule) is equivalent to the broad formula—"what is right for me is right for all in the same circumstances." This Mr. Sidgwick unhesitatingly pronounces to be an Ethical Axiom, a self-evident proposition. It is definite, and it is not an identical but a real proposition. The second rule, the rule of Benevolence, is "to promote the welfare and happiness of all men." This too is self-evident; it cannot be made to repose on any more fundamental principle. It is also perfectly intelligible, allowing for the latitude that may be given in applying it. Kant, in a different way, has arrived at the same two rules. He then refers in this connection to J. S. Mill's proof of the principle of Utility, to which he objects that the principle of Universal Benevolence (which is the Utilitarian theory) is subjected to a hedonistic interpretation.

The closing chapter of the Book on Intuitionism resumes the inquiry—What is the Good, the *Summum Bonum?* Happiness, no doubt, in great part, but not wholly, in the judgment of Common Sense. Neither is it exclusively Virtue. Goodness or Excellence of Conscious Life must be allowed to be "good;" but some farther elucidation is needful. Now Common Sense, while peculiarly averse to Egoistic Hedonism, is not dissatisfied with Universalistic Hedonism as a sufficing end. Universal Happiness—desirable conscious life for the innumerable multitude of living beings, present and to come—seems an End that satisfies our imagination by its vastness, and sustains our resolution by its comparative permanence and security, In short, as the conclusion of the whole matter, the Intuitional method yields as its final result the doctrine of pure Universalistic Hedonism.

We are now at the Fourth Book, UTILITARIANISM. The need of clearing up the meaning of this much abused notion is urgent. The great point, however, is to detach it utterly from a selfish system, an Egoistic Hedonism. As to Bentham's wording of the principle, adverse criticism is too easy. For one person that has mastered his almost unexceptionable exposition, a million are acquainted with his exceptionable motto.

But now we come to the graver question—What is the proof of Utilitarianism? Egoistic Hedonism may dispense with

proof; each agent may be allowed to postulate his own happiness as an end; but it is different with Universalistic Hedonism. No doubt Common Sense accepts it, and we may, if we choose, rest satisfied with that acceptance. Common Sense or Intuitionism is a crude or impure Utilitarianism; if the crude form is to be admitted, how much more the purified article. The author once more reviews the chief virtues, showing that each one of them is in its basis utilitarian, and has its boundaries set by utilitarian considerations. In fact, without considerations of utility, the common sense virtues would be unworkable. Take Benevolence. This, rationalised, would be an exact description, a summary, of Utilitarianism. In an interesting series of examples, the author proves the point at length. An equally strong case is made out under Justice, and the Obedience to Law. The missing links of Intuitionism are provided by Utility. So with Truth-speaking and its exceptions. Again the discrepancies of the moral codes of nations can often be accounted for by referring to special utilities; likewise the unequal stringency of the same enactments towards different individuals. So much for the proof of Utility by Common Sense.

The Utilitarian System being now enthroned (subject to a final question still to be put), how is it to be worked out? In other words, how are we to proceed in authenticating, or else in amending, our present morality? For morality has changed in the past and may change in the future. The answer is—nothing for it but Empirical Hedonism. With all its defects, this is the only method left us; the substitutes have been weighed and found wanting. Mr. Sidgwick puts himself into the situation of an ethical reformer, under Utility, and plays the part of a conservative liberal. The existing Common Sense (with its utilitarian handling) he would have to be provisionally received, but not to be regarded as a faithful transcript of utility, nor as a final adjustment of our duties. He points out the many disturbing causes that have been at work to render imperfect the morality handed down to us from bygone times. If we now shrink from the hedonistic calculation, how we can respect the solutions given by men less informed and more fool-hardy? Their sympathies were limited; their intelligence was also limited. False religions gave a wrong bias: founders of religions did not even refrain from introducing their own individual likings and dislikings into the moral code; if Mohammed had been fond of wine, and indifferent to women, the morality of the human race (in the East) might have been very different. It is thus apparent that Utilitarianism has much to revise and consider in regard to our received

morality; that is, supposing anything can be made of the calculus of pleasures and pains. To dispense with the morality of instinct and tradition would be premature and ill-advised; the present rudimentary condition of sociology is alone a sufficient reason.

Mr. Sidgwick farther, in the true conservative spirit, considers all the precautions to be observed by an ethical innovator. Indeed, no one will charge him with any serious designs upon our present moral code. He sets an example of the careful balancing of the two sides of every question, which is often neglected by common sense, but cannot be neglected by the Utilitarian thinker.

The concluding chapter is the gravest of the whole book. It has the merit of at least putting explicitly the hardest question in Ethics. "It has yet to be shown why a man should be a consistent Utilitarian." As the author has already refused (on good grounds) to admit that virtue and happiness coincide in the long run, he has burdened himself with the task of showing an adequate reason for preferring virtue at all hazards. The effect of virtue (that is, of social restraints and good conduct of every kind) is greatly to multiply the general stock of human happiness; but it does not necessarily repay every contributor in exact proportion to his contributions. In fact, a number of the contributors get little or nothing; many dutiful lives are both short and miserable. This effect, however, is deplored by society itself; the constant aim is by improved arrangements to reduce the number of self-sacrificing members.

Mr. Sidgwick makes ample allowance for the reciprocities of society, together with the pleasures of sympathy and compassion, but is yet inexorable in refusing to admit a perfect and universal coincidence between Utilitarian duty and self-interest. What then is to be done? Try the Theological solution. Alas! this too crumbles under his handling. Is there then no solution; no motive adequate to perform the sacrificing duties? The author mournfully says *none;* and yet thinks that something must be done.

"We have found that the antithesis between Intuitionism and Utilitarianism must be entirely discarded: since the first Principle of Utilitarianism has appeared as the most certain and comprehensive of Intuitions, and most of the others naturally range themselves in subordination to it, and even seem to be most thoroughly understood when considered as partial applications of it unconsciously and imperfectly made. Nor has it appeared very difficult to marshal our common judgments both of Goodness and of Rightness into a system under this principle without impairing our confidence in the

substantial veracity of Common Sense: and all particular moral sentiments and special sympathies fall easily into their places as auxiliaries to the two supreme coincident impulses, Universal Benevolence and the desire to do what is Right as such. In such a reconciliation, though much practical embarrassment may be caused in details by the conflict that will partially continue between what we may now call Instinctive and Calculative Morality, all theoretical perplexity as to the general principles of determining Social Duty will have been entirely—or almost entirely—removed. But the fundamental opposition between the principle of Rational Egoism and that on which such a system of duty is constructed, only comes out more sharp and clear after the reconciliation between the other methods. The old immoral paradox, 'that my performance of Social Duty is good not for me but for others,' cannot be completely refuted by empirical arguments; nay, the more we study these arguments the more we are forced to admit, that if we have these alone to rely on, there must be some cases in which the paradox is true. And yet we cannot but admit with Butler, that it is ultimately reasonable to seek one's own happiness. Hence the whole system of our beliefs as to the intrinsic reasonableness of conduct must fall, without a hypothesis unverifiable by experience reconciling the Individual with the Universal Reason, without a belief in some form or other, that the moral order which we see imperfectly realised in this actual world is yet actually perfect. If we reject this belief, we may perhaps still find in the non-moral universe an adequate object for the Speculative Reason, capable of being in some sense ultimately understood. But the Cosmos of Duty is thus really reduced to a Chaos; and the prolonged effort of the human intellect to frame a perfect ideal of rational conduct is seen to have been foredoomed to inevitable failure."

A sad ending to a great work! I cannot but think, however, that too much is demanded. Mr. Sidgwick appears to suppose that individual and universal happiness must both repose upon one foundation; or rather that self-regard must carry with it the regard to others. Now it seems to me that the sooner he gives up this expectation the better. To seek our own interest is one thing; to renounce our own interest for another man's is quite a different thing; the second cannot by any conceivable device be forced under the first. That "I am to be miserable" cannot be an inference from "I am to be happy." There must clearly be *two* things postulated as the foundations of human duty, each for itself and on its own merits. It is reasonable for each one to seek ~~their~~ his own happiness; it is right, reasonable, for each to give up, if need be, ~~their~~ own happiness for the sake of the happiness of some other persons. The first motion being put and carried *nem. con.*, the second becomes an independent and substantive

motion, and must be put on its own distinct grounds of acceptance. In all human societies hitherto, this motion has been also carried with more or less unanimity and with more or less of qualification; and being carried, men have to a certain extent acted up to it.

On Mr. Sidgwick's book as a whole, I would venture the following remarks. On its own plan, the completeness of the handling is almost beyond praise; I cannot assign any important omission, while often struck with the opposite fact. Equally, if not more, meritorious is the logical rigour of the reasonings. Any one might fearlessly offer a reward for every fallacy, under the widest classification of the fallacies. Whatever the author touches, he clears, and not seldom adorns; while ruined sophisms strew his track.

If I must be critical, notwithstanding the extent of my approval and concurrence, I would indicate one other point (besides the Hedonistic Calculus) where the ideas (although all stated) might have been expanded with advantage to the main theme. I think that Mr. Sidgwick might have been fuller upon the influences apart from Utility, well or ill apprehended, that have determined the traditional morality. On the maxim that, before pronouncing a person to be wrong, it is desirable to know how he came to be wrong, any proposal to alter a moral rule should be accompanied with an account of the mode of its origination.

My concluding remark is more general. The author amply recognises the close and inseparable connection of Ethics and Sociology. Yet I doubt whether he has done everything that this connection would impose upon him. My conception of morality is that it should never be separated from the consideration of the social organism. In the matter of Duty, Society is the alpha and the omega. What I mean will receive a contrasting illustration by referring to Bentham's motto, and to Mr. Sidgwick's wording of Universalistic Hedonism. "The greatest happiness of the greatest number," the aim "at universal happiness," do not yield Morality as I understand it. Under these requirements, I fail to see how large fortunes can be otherwise than condemned. I, for my own part, would not oppose one man individually to any number of men individually; the opposition is—one man to the social body. It is to society, *as society*, that we are to offer up our individual happiness, when called upon by an emergency. The restraints that we all submit to are supposed to be needful for the effectual working of the social machinery.

Objection could easily be taken to the vagueness of this

statement, and it wants many explanations that I cannot here offer. But, even as stated, I believe it to be a position of advantage for attacking the difficult questions. It simplifies, by narrowing, the hedonistic calculation; it shows where the stress of obligation should lie—the preservation of the social system. It ranks the social ends in the scale of urgency, and commands our assent as soon as proposed. It declines the pursuit of Universal Happiness, and contents itself with Universal Security.

I apprehend that to attempt moral reforms upon the hedonistic calculus in all its unqualified extent, would break down from the handle that it gives to the opposition; in the mazes of such a problem, the balancing operation could be rendered hopeless. The effective point of attack is against over-government, that is, needless restraints. Here the burden of proof lies upon those in power. Authority may be called upon at all times to justify itself. Is it right to exclude women from the professions?—might be discussed for ever upon the *pros* and *cons* of Universal Happiness. If it is to be settled, in any reasonable time, this must be by insisting on a clear and overwhelming case for depriving one sex of the opportunities of worldly advancement possessed by the other.

One other point, and I have done. In that final pinch—the reconciling of the good of others with the good of self—the social wording of the formula, without resolving the paradox, presents it on the side that most easily gains acceptance. If I am bidden to give up my happiness to another man, I may not unfairly answer that I am surely free to keep what is my own. But if I am reminded of the claims of the society that I was born into, and spend my life in, I feel that a constraining voice has spoken to me. Such is our habituation to the social relationships, that we are disposed to fall in with the prescribed arrangements without question. "I and my king" are one, when the social impetus is awake. There are occasions when the other impetus wakens up, and perhaps carries the day; but we are under a divided dominion; the best of us are always faithful to Society; the worst cannot entirely throw off allegiance. "Am I not a man and *a brother?*" is the full expression of *Homo sum.*

A. Bain.

IV.—MR. SIDGWICK ON INTUITIONALISM.

Mr. Sidgwick's work, though named *The Methods of Ethics*, is not on the methods of investigation appropriate to ethical inquiry. It aims at an impartial statement of rival theories, and a summing-up of the evidence, for and against, in a

judicial spirit. To attempt the task "quite neutrally" is well in intention, but peculiarly difficult in execution. It is rather a hopeless business for one who does not believe a theory, but sets himself to criticise and reject it, to volunteer the service of "throwing it into scientific form." Mr. J. S. Mill wonderfully succeeded in brief statements of single positions held by opponents. Mr. Sidgwick has, I humbly think, largely failed in the attempt to give a clear and fair representation of Intuitionalism. My object in this paper is to offer a protest against the representation, and, if I can attain my end, secure a clearer understanding of the intuitional scheme of thought, especially among its opponents.

In order to clear the way, let me begin with a concise statement of the Intuitional theory of moral distinctions. Self-evident laws of conduct afford the only rational basis for distinguishing the moral qualities of actions, and self-evident moral laws are intuitively known by men, that is, directly recognised by the Reason. Or, to throw it into another form: Moral laws are applied by all men, and are recognised as essentially true and authoritative, though their validity has not been determined by personal induction, nor established by experience of past ages, nor by the *consensus* of opinion among the more intelligent and civilised nations,—but is self-evident to the reason.

In turning to Mr. Sidgwick's representations of the theory, I confine myself to the introductory chapter on "Intuitionism," —the first chapter in the Third Book, consisting of 15 pages.

I. Mr. Sidgwick fails to give an adequate statement of "the fundamental assumption" of Intuitionalism. He says (p. 178) it is "that we have the power of seeing clearly to some extent what actions are right and reasonable apart from their consequences (except such consequences as are included in the notions of the acts)." To take the last part of this statement first, it accurately shuts off the utilitarian view, that the rightness of actions is an inference from their anticipated consequences. Intuitionalists hold that a man who speaks the truth, is certain that he does a right thing, without reckoning the consequences; and that a man who is paying his debts is in that doing a right thing irrespective of consequences. But Mr. Sidgwick is unfortunate in his use of a singularly obscure form of expression—"the power of seeing clearly to some extent." I do not suppose that a single representative of Intuitionalism could be found to accept the responsibility of such a phrase. "To some extent" is so indefinite as altogether to neutralise the reference to "seeing clearly." I do not deny that some ambiguity is to be found in the representations of

intuitionalists themselves, and therefore I do not throw the entire blame of ambiguity on Mr. Sidgwick. Intuitionalism, like Utilitarianism, has gone through various stages. This imposes a task of some nicety upon any one who would state in a single sentence the fundamental assumption of either scheme of doctrine. Whoever would describe and criticise Intuitionalism must gather up the best results of most recent thought. He must not take the "earliest" and crudest expressions of the theory, as "more trustworthy than the latest,"—if I may borrow a shaft from the author's armoury, when he awkwardly betrays another misunderstanding. The critic must summarise the theory in its most generally accepted form. This is what Mr. Sidgwick here fails to do. Intuitionalists point to what they regard as a fact; and they offer a theory of the fact. The *fact* is, that men do with clearness and accuracy distinguish certain classes of actions as morally right, and other classes of them as wrong. This is their fundamental postulate. Their *theory* is, that men recognise as self-evident a moral law, by the application of which the one set of actions is approved and the other set condemned. Opponents are of course free to criticise the theory, but this is the thing to be criticised; and its bearing upon the alleged fact is plain.

Meanwhile, let me confine attention to the alleged fact, which is "the fundamental assumption." Granting all that can be said as to the diversity, and conflict, and error apparent in moral judgments, the fact is this, that men are competent to distinguish with clearness and certainty between right actions and wrong, and are practically agreed in doing so. Where and whence arises the acknowledged confusion which Mr. Sidgwick obviously had in view when he penned this phrase "to some extent?" Dealing here simply with matters of fact, it is beyond dispute that men are often in perplexity as to moral questions. Where does this perplexity appear? Mr. Sidgwick points to one recognised phase of obscurity, when he says that we often have our judgments "warped and perverted by strong desire." This is a familiar fact, which is freely admitted by intuitionalists. But it is an additional fact, and one which does not throw doubt over that to which they point as the central fact in the case. Intuitionalists do not affirm that men never allow their desires to pervert their moral judgments. On the contrary they grant that such perversion is frequent. But this, as a distinct fact, seems to them to carry some confirmation of the central fact. For if we say that our judgments are often "warped and perverted by strong desire," we imply that we are capable of recognising that our judgments have in such cases been perverted, and this is confirmatory of the

fundamental assumption that men do clearly distinguish certain classes of actions as right, and others as wrong. But there is another fact mentioned. Men are often in doubt as to matters of *duty*. This is something different from the classification of actions according to their moral qualities, but it is closely connected. Men are often in perplexity as to whether they ought to act or not; and, on the supposition of acting, whether in this way or in that. But this also is a fact admitted by intuitionalists. While maintaining that men clearly distinguish actions as right and wrong, and therefore can readily enough recognise what things are not to be done, intuitionalists do not affirm that this knowledge is all that is needful to settle questions of duty. But they hold, as a preliminary, that there is such acquaintance with moral distinctions as makes it possible for each man with care and reflection to determine what his duty is in the position in which he happens to be placed. There is still another fact requiring to be named here. Men often do wrong and attempt to *excuse* it. This also is a fact admitted by intuitionalists, but it is altogether distinct from that to which they point in their fundamental assumption. For it is to be remarked that men who excuse wrong-doing, do not exactly profess that the wrong they have done is right. Their form of excuse implies the contrary. They excuse themselves, either on the plea that circumstances over-mastered them, or on that plea put forward by Socrates in behalf of all such, that appearances deceived them. But to plead that they were overcome, or to grant that they were deceived, is to grant the fundamental assumption that they are capable of distinguishing the right from the wrong. These three facts, that moral judgments may be warped by desire,—that men are often in doubt as to what they ought to do in the circumstances in which they are placed,—and that men often excuse themselves after wrong-doing,—are facts which must be accounted for under any ethical theory adopted. But they do not interfere with the special fact to which intuitionalists point. The alleged fact is that, in the midst of all the existing confusion of thought, and inconsistency of conduct, men clearly and accurately discriminate definite classes of actions as right, and others as wrong. This, if it be a fact, is all the more striking and important in view of the acknowledged confusion of thought on moral questions. There is unanimity among men in resenting as wrong their being deceived, or deprived of their property, or being cruelly treated, or refused what has been promised them. There is unanimity among men in approving as right their experiencing kindness from others, their receiving payment of sums due to them, and the fulfilment of promises made to them. I refer to

the view which men take of the actions of others, not because I favour Adam Smith's way of dealing with knowledge of moral distinctions, but because I seek the stand-point from which the fact signalised by intuitionalists is best seen. So much for the fact. Now for the theory offered in explanation of it,—the higher fact accounting for it,—that we have a direct intuition of moral truth, and this truth men with more or less accuracy apply in their moral judgments. Intuitive knowledge certainly does not protect men from the influence of their own inclinations and desires, but it makes accurate judgment possible. I pass now to consider the representation given of Intuition itself.

II. Mr. Sidgwick does not afford his readers any clear indication of the nature of Intuition, but applies the term indiscriminately to a variety of mental exercises.

Intuition is a direct beholding of an object or a truth. It is immediate knowledge of the thing itself. It stands in contrast with knowledge of one thing through means of another, as in reasoning; and also in contrast with admission of real existence without personal observation of the thing, as in belief. It is direct vision. It may be an exercise of either bodily vision, or of the mind alone. Hence we speak of the lower and higher intuitions, the one class being intuitions of the senses—observations of external realities, the other, intuitions of the reason. It is with intuitions of the latter class we have here to deal. Intuition then is Perception in contrast with comparison or judgment, though the term has been applied to the notion obtained by simple comparison. It is a single and direct act, in contrast with a mental process. It is, as Mr. Sidgwick says, the power of "seeing clearly," and bodily vision may afford analogy by which to interpret statements concerning the higher intuitions.

Mr. Sidgwick does not restrict his use of the term to a definitely marked exercise of mind. He speaks of "Ethical *beliefs* that lay claim to intuitive certainty" (p. 187); he says that we "*judge* intuitively of the rightness and wrongness of actions" (p. 187); and speaks of "intuitive *judgments* which form the premisses of moral reasoning" (p. 189). Any one turning to Hamilton's classification of the terms employed to describe intuitions (*Metaph.* Lect. 38), will find both belief and judgment in the list. Intuitions have been named "primitive beliefs," and "primitive judgments." Mr. Sidgwick can, therefore, find authority for the wide use of the term which he adopts. But exact criticism is incompatible with such indiscriminating use of "intuition." Let us agree about the thing, and then we can understand what we are seeking for

among the facts of consciousness. The unfortunate consequences of the want of an exact definition of intuition are obvious all through the pages to which I am turning attention. For example, when Mr. Sidgwick says,—"our moral judgments are apt to be warped and perverted by strong desire" (p. 183), it is obvious that when intuitionalists speak of intuitions, they do not mean "moral judgments." Such judgments are not the "primitive judgments" of which some intuitionalists have spoken. Again when he says, "we too easily *think* that we ought to do what we very much wish to do" (p. 189), there is no doubt of the accuracy of the statement, but "*thinking*" in this sense is not what is meant by intuition in any case which could be adduced. If we are to understand each other,—if we are to discuss the problem with any satisfactory results,—it must be clearly recognised that "moral judgments," even the best of them, do not represent what is meant by intuitions of moral truth. From the time when Kant insisted that we must distinguish between *à priori* and *à posteriori* elements in our knowledge, the exact contrast between intuitional and inferential has been plain, even in cases where *à priori* and *à posteriori* elements mingle in the same state. Judgment may be involved with the action of our senses in perception, but there is not any difficulty in tracing the separate contributions they severally make to the whole. So some degree of intuitional knowledge may be present with our moral judgments, or it may be altogether wanting, but, if present, the exact contributions of intuition and reasoning can be traced. Readers may see this clearly enough indicated by turning to Reid, or Stewart, or Hamilton. Or, if more recent books are taken, it may be seen in Dr. McCosh's *Intuitions;* or in Dr. Noah Porter's *Human Intellect*,—a book which deserves to be better known in this country.

III. Mr. Sidgwick raises the question as to "the object to which the moral intuition is primarily directed," and in answering it turns attention upon points which have no special relation to Intuitionalism.

He says there is "difference of opinion" on the question, and the difference concerns the point whether "the object to which the intuition is primarily directed" is the action, or the motive which leads to it. The question here really is whether moral qualities belong to overt acts, or to motives. But this is not a matter connected with an intuitional theory. These are preliminary questions which must be answered before we construct any theory of our knowledge. We stand on common ground, if we point out that moral quality is attributed to motives, overt acts, or contemplated ends. But though one or

other of these is contemplated when a moral judgment is passed, it is a different question, and quite in advance of this, when we inquire whether we possess intuitive knowledge to guide us in our judgments.

IV. Mr. Sidgwick raises the question, — "Have we any Intuitions?" and answers it in the affirmative, but with such restrictions as to involve the whole theory in obscurity.

Whether there are intuitions is a question of psychology, which intuitionalists admit to be settled by simple analysis of the facts of consciousness. Mr. Sidgwick says,—"Probably the statement, that at any rate the majority of men, in the present state of human development, have an intuitive and immediate apprehension of the rightness and wrongness of actions, would never have been denied as a psychological proposition, if it had not usually been presented in combination with two other much more disputable propositions" (p. 185). This seems a large admission, but when explained, it comes to mean that the statement would not have been denied if it had been something else than it is, for the other propositions follow by logical sequence. The other two propositions concern the *validity* and the *origin* of intuitions. Mr. Sidgwick says,—"The existence of moral intuitions has been confounded with their *validity;* and the inquiry into their nature as present facts has been mixed up with an inquiry into their *origin.*" If proof were called at this point, our author would not be left altogether without evidence in support of his allegation, but the evidence in defence would be overwhelming. That "intuitive" and "innate" have been often interchanged, as if they were identical, may be granted. But to say that the existence and the validity of intuitions have been confounded, is astounding. Current Utilitarian traditions do indeed allege this of the intuitional theory. But the allegation is the very reverse of accurate, if it be meant as a general characteristic of Intuitionalism. Assuredly intuitionalists do not rest the validity of moral truths on the mind's power in recognising these truths. They hold that the truths are perceived as self-evident, that is, the truths carry their evidence in themselves. They are recognised as objective laws, which intelligence by its nature recognises as objective, that is, as authoritative independently of all subjective considerations. On an Intuitional theory, the validity of the thing known is essentially different from the mode of knowing, namely immediate perception. When we speak of "the validity of intuitions," it is an abbreviated expression for "the validity of the moral principles (said to be) intuitively known."

When next we speak of "origin," the reference is wholly

different. The question is, how is it possible for the mind directly to perceive moral truths, or how are intuitions of the higher order possible to mind? The "origin" spoken of is not the origin of the principles or truths, but of such mental exercise as that designated "intuition." And the word "innate" is so far from being identical with "intuitive," that it points to the explanation of the possibility of intuition. The intuitionalist refers to an inherent power of intelligence. This is the very thing which is denied by the experientialist, who thinks himself capable of giving a "natural history" of mind from the rise of sensation. The contrast between the conflicting theories is thus thoroughgoing. The origin of intuitions is held to be explained by an original power of mind. To put it in negative form, intuitions are neither the product of experience, nor the fruit of development.

Let me now leave out of account the validity of the principles, and the origin of the intuitions, to consider the fundamental question whether there are intuitions. Mr. Sidgwick says,— "The mere fact that we continually pass moral judgments does not prove that we ought to accept them as unquestionably valid" (p. 185). Here we are agreed. Intuitionalists make it a great part of their business to protest against the tendency of men to regard current moral judgments as correct and authoritative. I have insisted upon this at great length,— some may think at undue length,—in my *Handbook of Moral Philosophy*. But dropping all reference to the validity, it is of consequence to remark that when Mr. Sidgwick refers to "the mere fact that we continually pass moral judgments," he does not introduce a reference to "intuitions." To speak of moral judgments as if they were "intuitions" is to misunderstand the theory. To proceed to criticism on this supposition is to shoot arrows vainly into the air. Intuitionalists do not regard these "moral judgments," which "we continually pass," as "spontaneous utterances of Conscience." They grant that "we may find it necessary to revise and correct" our moral judgments; but they do not regard this as a revisal and correction of intuitions, or of spontaneous utterances of Conscience. On the contrary, such correction is impossible, and the proposal of it absurd. Still, it is to be borne in mind that Mr. Sidgwick is not altogether responsible for such confusion. Intuitionalists themselves have been guilty of it. Reid admitted the possibility of such correction; Kant treated the mere suggestion with scorn. But, Mr. Sidgwick will find it difficult to show how representations of this loose order have found a place in a work in which he is trying "to throw intuitionalism into a scientific form." It is impossible to devise any form for the

theory which can have any pretence to be called "scientific," as long as the "moral judgments" which "we continually pass," are regarded as intuitions. Mr. J. S. Mill clearly saw this, and stated it in his *Utilitarianism*. "Our moral faculty, according to all those of its interpreters who are entitled to the name of thinkers supplies us only with the general principles of moral judgments. . . . The intuitive, no less than what may be termed the inductive, school of ethics, insists on the necessity of general laws" (p. 3). It is needless to multiply evidence of this, but take Reid's *Active Powers*;—"All moral reasoning rest upon one or more first principles." It is not the moral reasonings which are intuitions. "The first principles of morals are the immediate dictates of the moral faculty" (Hamilton's *Edition* p. 591). Take Kant's *Grundlegung zur Metaphysik der Sitten*: the "Categorical Imperative" is not represented as belonging to our judgments, but to "a law the representation of which alone must determine the will." If the distinction between judgments and first principles be kept before the mind, it is easy to see how Intuitionalists can allow that men blunder as readily in their moral judgments as in other judgments, and even more frequently, and at the same time hold an intuitive knowledge of moral law. This intuitive knowledge is knowledge of that which is binding equally upon all. The presence of such an element can be readily discovered in the midst of our moral judgments. It is not judgment itself,—it can easily be distinguished from a particular decision,—but it is generally present with that decision, underlying and sustaining it, and giving to it a wider application than the person himself contemplates. The acknowledgment of the presence of a general element is distinctly made by Mr. Sidgwick. "If then I assert any action to be right, I imply that it would be right for any other person in my circumstances, or . . . for all persons in precisely similar circumstances" (p. 183). "In a sense, all moral judgments are universal in their import" (p. 189). There is a "potential universality" in the judgment. "Reflective conscientious persons are not in the habit of trusting an unreasoned judgment respecting each case that comes before them; they are rather inclined to bring it under some general rule, which they believe to be supported upon the common consent of mankind, as well as intuitively discerned by their own moral faculty" *(ib.)*. "No doubt we find such universal moral intuitions in most or all minds" (p. 190). Intuitionalists would remove the "most" from the last statement, but otherwise these passages represent what they regard as palpable matters of fact. By them an immediate perception of self-evident truth is accounted the only

adequate explanation of the "potential universality" which appears so singularly in our moral judgments.

I close this brief notice of a single chapter in the *Methods of Ethics*, with the expression of my admiration of the ability manifest everywhere throughout the book. The judicial balancing does, to my thinking, leave too many things in equipoise. But I freely express my belief that Mr. Sidgwick has rendered a great service to Intuitionalism by the line of criticism he has followed in treating of the several virtues. That the criticism is successful, I do not allow; but it is on a line not commonly taken by Utilitarians, and therefore all the more likely to be serviceable. There is besides something of consequence in the fact that Mr. Sidgwick appears in the novel character of an Intuitional Utilitarian. There is thus far, therefore, on his part some homage to Intuitionalism. And this homage is the more important in view of J. S. Mill's admission of the difficulty of reaching a philosophic basis for universal moral obligation (*Utilit.* p. 40), and in view of Professor Bain's suggestion that we should transfer all the higher phases of benevolence into a region of "Optional Morality" (*Ment. and Mor. Science*, p. 435).

H. Calderwood.

V.—MR. JEVONS'S FORMAL LOGIC.

Mr. Jevons's work, *The Principles of Science*,* since its appearance more than two years ago, has not received anything like the amount of attention it deserves. That such a book should have remained so long unnoticed by the greater reviews that could devote sufficient space to the critical appreciation of its contents, is indeed a signal proof of the need for a special philosophical journal. An attempt will be made in these pages to examine it with due care. It is a work of much excellence, yet also, as it seems to the present writer, open to exception in many ways.

Mr. Jevons begins by expounding a theory of Formal Logic, deductive and inductive. Upon this basis he proceeds to explain the science of Quantity, especially Number, as an outgrowth from pure logic, and in the same relation deals particularly with the theory of Probability, of which he finds the scientific—or, as he commonly calls it, the inductive—investigation of Nature to be a mere application. He next turns aside to set forth the various Methods of Measurement

* *The Principles of Science: A Treatise on Logic and Scientific Method*, by W. Stanley Jevons, M.A., F.R.S. 2 vols. 1874. Macmillan & Co.

employed in quantitative research. Then follows in full detail his doctrine of Inductive Investigation, with a subsidiary treatment of Generalisation, Analogy, &c., and a preliminary handling of Classification, to be carried out in a future work. Meanwhile the present work reaches its term with some general reflections on the results and limits of Scientific Method.

The Methods, rather than the Principles, of Science would perhaps be a more appropriate title for the book as it stands. Systematic investigation of principles in any philosophical sense of the word there is none. On the other hand, the exposition of methods employed in the actual investigation of nature is most elaborate and altogether admirable. No such exposition existed before; and, as far as the present writer can judge or can learn from the judgment of competent authorities, the accuracy of Mr. Jevons's acquaintance with the most varied departments of science is singularly great. As a methodologist he has fairly outstripped predecessors as great as Herschel, Whewell and Mill.

If the book really corresponded to its title, Mr. Jevons could hardly have passed so lightly over the question, which he does not omit to raise, concerning those undoubted principles of knowledge commonly called the Laws of Thought. The question is whether these are subjective or objective, and Mr. Jevons is of opinion—an opinion in which he does not stand alone—that they are at once subjective and objective. One wishes, however, that he had given some reasons for his view and not, in a book dealing expressly with the Principles of Science, have contented himself with the bare statement that he is "inclined to regard them as true both in the nature of thought and things" (I. p. 9). Everywhere, indeed, he appears least at ease when he touches on questions properly philosophical; nor is he satisfactory in his psychological references, as on pp. 4, 5, where he cannot commit himself to a statement without an accompaniment of "probably," "almost," or "hardly." Reservations are often very much in place, but there are fundamental questions on which it is proper to make up one's mind. Judged by his book, Mr. Jevons does not equal either Whewell or Mill in philosophical grasp.

The present article will treat only of the first part of the work,* in which the author following in the track of recent logicians seeks to recast the traditional doctrine of Formal Logic, by propounding a new principle of reasoning and, in

* Even this to the exclusion of the last chapter in it, dealing with formal Induction, which will best be considered in connection with Mr. Jevons's general doctrine of inductive inference.

furtherance of its application, devising an appropriate system of symbolic expression for logical propositions. Since the doctrine of the Quantification of the Predicate was first enunciated in this country by Mr. George Bentham in 1827, and brought into vogue later by Hamilton, various attempts have been made to set aside the older doctrine of proposition and inference which originated with Aristotle; and of late years no one has laboured so persistently at the double work of demolition and reconstruction as Mr. Jevons. In two previous essays, *Pure Logic* (1864), and *Substitution of Similars* (1869), also in a variety of special papers, he has felt his way towards the doctrine which he now propounds in a form that, if not final, yet appears to him sufficiently developed to supersede at once all other modern doctrines and that ancient one against which they were levelled. It is advanced as embodying all the anti-Aristotelian import of the newer theories; at the same time, as systematised or organised beyond any of them; and yet withal as perfectly simple in principle and details when compared with the greatest among them—the very complex and long-drawn system of the late Professor Boole. Nor does Mr. Jevons at all exaggerate the merits of his doctrine in relation to his compeers. He is superior to Boole not only in the simplicity and directness of his logical processes but also in his conception of the relation of logic to mathematics. His own doctrine of Number is not in all respects satisfactory, as may on another occasion be shown, but his arguments (pp. 173, 4, *et alib.*) against Boole's notion of logic as a special kind of algebra, are excellent and decisive. We may proceed then to consider Mr. Jevons's doctrine as the best outcome of the modern revolt against the Aristotelian system, sure that nothing has been urged in opposition more strongly than he urges it.

Mr. Jevons's Introduction may be described as a summary plea for a statement of the reasoning process which shall be strictly universal and not, "like the ancient syllogism," cover "but a small and not even the most important part" of the whole extent of logical arguments. The universal principle (of "Substitution") suggested is in these words: "So far as there exists sameness, identity or likeness, what is true of one thing will be true of the other." Here there is evidently implied an expression of logical propositions in the form of equations, and accordingly a general justification is offered for such a mode of expression, while an appropriate system of symbols is indicated. A chapter on Terms is then placed first according to the usage of logicians, and Mr. Jevons has both amendments and advances to propose upon the common

doctrine, besides fixing more exactly the nature and conditions of his symbolical expression of the terminal elements of propositions. The next chapter deals with Propositions themselves, and contains all the express arguments the author has to offer for putting them into the equational form. He is now in a position to treat of Direct Deduction, which consists in an application of his principle of Substitution to the terms of (equational) propositions under the first law of thought (Identity), and here he seeks to show how small a part of all deductive reasoning is represented by the forms of Syllogism, also how imperfect is the representation. There remains the process of Indirect Deduction, consisting in the practice of Substitution under the laws of Contradiction and Excluded Middle (Duality) as well as Identity; this has however to be prefaced by a consideration of Disjunctive Propositions, since the alternative relation *(either-or)* is employed in the expression of any logical notion in terms of another according to the law of Duality. The Indirect Method of Inference is introduced at first as a merely supplementary process, to be resorted to as the means of proving that a thing cannot be anything else than a particular thing when it cannot be directly proved to be that thing; but it shows itself so powerful that it ends by swallowing up Direct Deduction and remaining alone in the field as the truly universal process of reasoning. It proves to be able to furnish a complete solution of the universal problem: Given any number of logical premisses or conditions, required the description of any class of objects or any term as governed by those conditions; and being a process that follows a fixed unalterable course in all cases, it can be shortened and facilitated by a number of contrivances, on which Mr. Jevons has spent much inventive power. The most remarkable is his famous logical machine, which in a most ingenious fashion does unerringly perform the work of pure logical combination, the mind by a conscious process having first brought the premisses given into a definite symbolic form and again at the close having to interpret the results mechanically attained.

There is some difficulty in assigning the precise *idée-mère* of the system. Mr. Jevons does not say whether reasoning is what he describes it—a process of substitution—because propositions ultimately understood are equations, or whether it is the substitutive character of reasoning that necessitates the adoption in logic of the equational form. On the whole the latter seems to be his view, since he allows that propositions may be expressed otherwise; but in any case the two positions are involved with each other in his mind, and it is evident from

the beginning that it will be a main part of his task to develop a doctrine of Proposition suited to the principle of Substitution. Hence the rough outline of such a doctrine advanced in the Introduction; where he maintains that the analogy between the relation of subject and predicate in logical propositions and the relation of the two terms in mathematical equations justifies the use of the mathematical sign = for the logical copula. At this stage he does not urge that the sign ought always to be so employed, for he even speaks (p. 20) of equality as but one of many relations that may subsist between logical terms, and from this point of view gives to the general formula of logical inference the new expression: "In whatever relation a thing stands to a second thing, in the same relation it stands to the like or equivalent of that second thing." Here also, however, one equation is presumed before the reasoning, as understood by Mr. Jevons, can proceed, and the critical question remains how to determine equivalence in logical propositions generally. That it can be done is clear to Mr. Jevons, when he asserts shortly afterwards (p. 29) that "every proposition expresses the resemblance or difference of the things denoted by its terms;" but this of course is the very point to be proved and the mere assertion decides nothing.

The chapter on Terms may be lightly passed over. Mr. Jevons, in as far as he adopts the common distinctions (general-singular, abstract-concrete, collective-distributive and the like) does not add anything of importance to the determination of their character, while some of his statements are decidedly loose. In particular he confuses the *singular* and the *proper* name when he charges logicians with erroneously asserting that singular terms are devoid of meaning in intension: Mill, whom he points at, never says any such thing of singulars—says of many singulars quite the reverse—and in denying connotation to proper names is surely correct. Mr. Jevons himself would set up a new class of terms under the name *substantial*, which he finds, oddly enough, to partake of the nature both of abstracts and concretes. Gold, for instance, is a concrete substance, yet is has a uniformity or unity of structure—being gold with all its qualities in every part of it—which allies it with abstracts like redness; for redness, according to Mr. Jevons (p. 34), "so far as it is redness merely, is one and the same everywhere, and possesses absolute oneness or unity." Logicians, he complains, have taken very little notice of such terms. But why should they take any notice of a distinction that is wholly material or extra-logical? Gold is a concrete, so is water and so is lion. What matters it to the logician that you always break up gold, being an elementary

substance, into parts of identical character, but not always water, because water is a compound, and never lion, because lion is an organism? If Mr. Jevons will embark upon such distinctions, he will not soon come to the end of them. This one, too, is not happily named. Are not lion and water also substantial? The fault extends to Mr. Jevons's account of collective terms, as the reader may see on p. 35. What remains of the chapter has its importance in relation to the symbolic expression of terms in propositions, and to the central doctrine of Proposition let us pass.

It is now Mr. Jevons's express object to show that all forms of proposition "admit the application of the one same principle of inference that what is true of one thing or circumstance is true of the like or same" (p. 43), and this, we understand, amounts with him to proving that all propositions may be expressed as equations. Propositions, he begins by saying, may assert an identity of time, space, manner, degree or any other circumstance in which things may agree or differ, and in support he cites a number of instances where the notion of sameness or equality is expressed or more or less distinctly implied in the *predicate*. No doubt, there is a sense in which such propositions assert identity, but they make nothing for the general thesis that identity of some kind is what all propositions express. Proceeding however to maintain the thesis in regard to all propositions involving "notions of quality" (which is as much as to say all *logical* propositions whatever),* he finds at once that "the most important class" consists of assertions which may be called "Simple Identities," represented by the formula A = B. Let us look at these more closely.

As illustrations of Simple Identities, Mr. Jevons adduces two cases of similar sensible qualities, one or two cases of verbal synonyms, some cases of propositions with singular names as subjects, some cases of definitions, one case of a number of objects brought together into a collective expression, some geometrical equations (*e.g.*, Equilateral triangles = Equiangular triangles), and some expressions concerning uniform and exclusive co-existence of qualities (*e.g.*, Crystals of cubical

* Mr. Jevons speaks here (p. 44) of "confining attention" to the propositions thus described, and leaving over propositions concerned with number and magnitude. In fact he leaves none over, for propositions *about* quantity, which are those he has in view, do in respect of logical form involve what he calls "notions of quality" as much as any others (else, how should logic be the truly fundamental science?); and accordingly he does not scruple (p. 46) to refer to such among others in spite of any previous exclusion.

system = Crystals incapable of double refraction). He mixes all these up together as if they were of equal importance logically; but, while some of them are irrelevant, being propositions of the kind noted before in which the identity or similarity asserted is really part of the predicate, others, it is plain, are propositions only by courtesy, being either of no logical importance, because they are assertions about mere names or about singular things under proper (meaningless) names, or logically important as definitions not as propositions. In short none of the illustrations are of any real account for Mr. Jevons's argument except those falling under the last two heads of the foregoing list. Real or synthetic propositions like those involved in the equations cited or in another often mentioned by Mr. Jevons, Exogens = Dicotyledons, are alone worthy of consideration. Let Mr. Jevons claim all the others as simple identities, similarities or what not as he will, and make formal equations out of every one of them. The question remains whether a real proposition about equilateral triangles or exogens can be legitimately put into the form of an equation with the mark = for copula, or whether equations like those quoted represent the propositions with which logic has to deal.

In point of fact, as Mr. Jevons is forward to allow, logic has many propositions to deal with that are anything but Simple Identities, *e.g.*, Mammals are vertebrates; and propositions of this type, in which the subject is commonly said to be included within the predicate, were taken by Aristotle as fundamental. For this act and his supposed consequent neglect of Simple Identities, the venerable father of logic has many reproaches showered on him (pp. 46, 48, 50, &c.), but Mr. Jevons should look into the *Prior*, to say nothing of the *Posterior, Analytics* and see if Aristotle was as oblivious as he supposes. Choosing to take his Simple Identities as fundamental, Mr. Jevons has to bring the other class into relation with these, and very curious it is to watch his procedure. He had pronounced Simple Identities "the most important class," "all-important," &c., and one would expect the others to be less important. From the first, however, he is forced to call them "an almost equally important kind" (p. 47), while later on they prove to include "the great mass of scientific truths" and "the most common of inductive inferences" (p. 149): they also enter into inferences "almost more frequently" than any others (p. 66). He observes besides that "in ordinary language the verb *is* or *are* expresses mere inclusion more often than not" (p. 48), an assertion which, though far from correct—for in truth the copula by itself means neither inclusion nor

identity—affords, one would think, with the other statements as to the scientific importance of this class of propositions, a very sufficient justification for Aristotle's selection of them as fundamental. Mr. Jevons notwithstanding will have identities made of them in subordination to his grand class (how grand we have seen!) of Simple Identities, and asserts, like others before him, that, though in the proposition, Mammalians are vertebrates, the terms are not simply identical, still there is identity between the mammalians and part of the vertebrates. Let the relation then be called a "Partial Identity." Quantifiers of the predicate insert the word *some*, and Boole uses a special symbol V, to mark the partial character of the identity: Mr. Jevons prefers another mode of symbolism. Mammalians (A) are identical with all vertebrates (B) that are mammalians (A): hence we may write A = AB, a form, he maintains, which at once fully expresses the whole content of the proposition and brings it into line with the fundamental class of Simple Identities. Add that, in order to get uniformity of copula (to be marked by the sign of equality), he does away with the distinction of affirmative and negative propositions, after the manner of Hobbes and others, by attaching the mark of negation to the predicate, while, after De Morgan, he chooses italics for the symbolic expression of negative terms (*a* for not-A), and we have before us perhaps all that is necessary for the understanding of Mr. Jevons's expression of propositions.*

But we have still to learn the exact meaning of such a Simple Identity as Exogens = Dicotyledons. It means, says Mr. Jevons on p. 19, that "the group of objects denoted by the one term is identical with that denoted by the other in everything except the name." The identity, he farther remarks, "may sometimes arise from the mere imposition of names, but it may also arise from the deepest laws of the constitution of nature." Here and in the words which follow on p. 20, Mr. Jevons clearly enough indicates the difference of verbal and real propositions which in his illustration of Simple Identities he confuses or ignores; but this by the way. To return to the example, he makes still another remark (p. 19), that it is "a logical identity expressing a profound truth concerning the character of

* He distinguishes, it is true, another "highly important class of propositions" (p. 51) under the name of Limited Identities, with the formula AB = AC, meaning: "Within the sphere of the class of things A, all the Bs are all the Cs;" but this class we may neglect. I remark only in passing that the example given by Mr. Jevons—Plants that are large are the plants that are devoid of locomotive power—though one sees how it *might* be represented by the formula, can hardly be so represented consistently with his symbolic expression of the other classes.

vegetables." There is here perhaps a faint suggestion that somehow the *qualities* connoted by the two terms are identical, but Mr. Jevons's view thus far plainly is that the only identity in the case is identity of objects denoted: the qualities connoted by the terms are indeed expressly different. So elsewhere (p. 58) he tells us pointedly that the equation means "that every individual falling under one name falls equally under the other." He adds, it is true, an alternative reading—"That the qualities which belong to all exogens are the same as those which belong to all dicotyledons"—which seems at variance with the other; but, rightly understood or given, it comes to the same thing. As it stands, the reading is of course erroneous if it means, as the words most naturally suggest, that the exogenous quality and the dicotyledonous quality are identical, not to say that it would, if valid, turn the proposition into one purely verbal. The true reading however which Mr. Jevons must be supposed to have in view is—that the qualities which belong to all exogens as such and the qualities which belong to all dicotyledons as such are always found together in the same objects. Thus we are brought back to identity of *objects*. And it may be freely granted that, where there is such thoroughgoing identity of the objects denoted by two names of different connotation, the substitution of one for the other is in this sense admissible that precisely the same objects will always be pointed at by either. It is also, no doubt, possible to mark this particular fact by the use of the mathematical sign for equality.

Next as to Partial Identities. It is equally true, in the expression Mammalians = Mammalian Vertebrates, that the same objects are indicated or denoted by the two terms of the equation; and the substitution in any case of the one for the other will always be admissible in the sense that precisely the same objects will continue to be meant under the more complex as under the simpler description. So far there is no more objection to the equational form here than before. But how then is the identity, what Mr. Jevons here calls it, *partial?* It is as complete as in the class of Simple Identities: indeed, if it were not so, it would be impossible to use the sign of equality or to practise that process of substitution (reasoning) for the sake of which the equational expression is adopted. What Mr. Jevons means by calling it partial is of course plain enough: he is thinking of the terms, not as they appear after manipulation in the equation, but as they appeared in the original proposition, where the terms are not simply interchangeable—do not indicate precisely the same objects—but are interchangeable only under certain conditions laid

down in the doctrine of logical Conversion. In short, the equation in this case appears as a highly artificial expression for the natural proposition—artificial in the literal sense that work has had to be done upon the proposition to bring it into the new form, and, if it is called a *partial* Identity, artificial also in the other sense of being a hybrid form—neither proposition nor equation. Mr. Jevons, it may here be added, claims as the first fruit of his theory—that it supersedes the whole doctrine of Conversion (p. 55); and we are now in a position to judge with what reason. If you take a proposition, Mammalians are vertebrates, and first carefully inquire what limits must be put upon the interchange of its terms, and then express those limits by a symbol, and finally, as you then may, express the whole as an equation, the very meaning of which is that it holds either way,—no doubt, you need the doctrine of Conversion no more; but you have assumed and used it in the preliminary process all the same. In truth, you have at the end not only surmounted Conversion: you have also got rid of Subject and Predicate—which means, if it means anything, that in attaining Equation you have abolished Proposition. Perhaps it is well so, but at least let it be understood, and let us talk no more in logic of "propositions."

Mr. Jevons, however, is perfectly aware that his expression for the common logical proposition may seem "artificial and complicated," and he gives due notice that it is on "general grounds" he contends for reducing every kind of proposition to the form of an identity (p. 50). These grounds, in character mainly practical, we shall presently examine, but the prior theoretic question, least thought of by Mr. Jevons, must first be once for all considered. The question is whether the logician, dealing with Thought, must start from Equations of the type A=B or from Propositions of the type A is B. If from Equations, they will be of the type of Mr. Jevons's Simple Identities, because all others, for example Partial Identities, are intelligible only as approximations to the simple type, and, but for the existence of the class represented by A=B, it would hardly occur to anybody to express the proposition A is B in the form of an equation (A=AB or otherwise). If from Propositions, they will be of the common type A is B, because no simpler conjunction of subject and predicate can be assigned. The question then resolves itself into another: Which of the two expressions is really the simpler and truly represents the fundamental act of Thought?

Mr. Jevons can only be understood as maintaining that it is the expression A=B. This appears from the whole course of his exposition, from his oft-repeated attacks on Aristotle

(who took precisely the opposite view), and very expressly in a passage (p. 135) where he stigmatises as "the most serious error" of De Morgan's logic his holding "that because the proposition All A's are all B's (A=B) was but another expression for the two propositions All A's are B's and All B's are A's it must be a composite and not really an elementary form of proposition." That is to say: the expression A=B *is* an elementary form of proposition and, for the reason just stated, *the* elementary form. But Mr. Jevons nowhere denies, nay himself repeatedly asserts, that the one expression A=B may be resolved into, or, what is the same thing, includes the two expressions A=AB (A is B) and B=BA (B is A); while his ingenious logical machine positively refuses to entertain the Simple Identity except in this double form. How can he then deny that the proposition A is B is in the truest sense simpler and more fundamental than the manifestly complex expression A=B; that this latter is not a logical proposition at all but a shorthand expression for two logical propositions which cannot farther be resolved? All that he says in reply to the dumb protest of his machine is that he does not think the "remarkable fact" of its taking in only the common logical proposition does really militate against the simplicity of his equational form A=B (p. 129). All the argument that he urges for the simplicity of the form is given at p. 71, where he asserts it to be more "simple and general" than either A is B or B is A, apparently because it follows from the two taken together and contains as much information as both of them! That seems a strange inversion of the meaning of generality and simplicity; and, for my part, I cannot understand how, in point of theory, any question remains. The question of the practical utility of equational or propositional expression is a different one and must be separately considered; but, in point of theory, it surely seems final to say that, if a form can be resolved into two other forms and each of these cannot farther be resolved either back again into the first or into anything simpler, we have got hold of elements or what may pass for such. The proposition A is B is such an elementary form in logic and expresses an act of thought as judgment than which none simpler can be assigned. The expression A=B (all A is all B) is not elementary, because it stands for two distinct judgments at once.

From the theoretic point of view there is, moreover, another fundamental objection to the use in logic of the sign for equality. The only sense in which it can be understood, when applied to logical propositions, is, as we saw, to represent identity of the objects denoted by the terms: if understood of

the attributes connoted by the terms, it does not at all express the true import of a real (synthetic) proposition. But it is precisely by their attributes—the aspect which cannot be expressed in equational form—that we *think* of things or bring them into logical relation, as Mr. Jevons allows (p. 58) when he says in language of his own (which I do not wholly adopt) that "there are many reasons for believing that the intensive or qualitative form of reasoning is the primary or fundamental one." I hold, therefore, on this ground also, that the equational form is theoretically inadmissible in logic. If, notwithstanding, Mr. Jevons is able, as we shall see, to work out with it a consistent doctrine of reasoning, this is due to the fact that connotation and denotation stand in a definite relation; and the doctrine may have its practical justification. But the theoretic difficulty remains.

We may now proceed to consider the grounds, mainly practical, upon which Mr. Jevons himself rests the credit of his doctrine with its equational base. General harmony, he contends, is established among all parts of reasoning (p. 50), and thereby a solution of the general logical problem is rendered possible (p. 105). He speaks also of Aristotle destroying "the deep analogies which bind together logical and mathematical reasoning" (p. 48), and by implication claims that his doctrine reveals them. This second point may first be shortly disposed of.

Save with the practical view of securing for logic the full use of algebraical processes, it is not clear why it should be a special object to establish analogies between logical and "mathematical" reasoning; for, if logic is the fundamental science, as Mr. Jevons triumphantly argues against Boole, there seems no meaning in seeking to do more than determine the exact logical import of mathematical, as of other scientific, processes. It is clear, however, that the supposed practical advantage cannot be secured without subordinating logic to algebra. Now could there be a more effective way of throwing doubt on its fundamental character than to find that specially mathematical processes are applicable in logic? Even the use of the single sign for equality is fraught with peril in this respect, more especially as upon it depend any other "deep analogies" there may be. Whether there be analogy or not between the sign in mathematics and the copula in logic, the sign is a mathematical one and cannot be used in logic without giving to mathematics from which it is drawn a prerogative character. Mr. Jevons accordingly, for all his opposition to Boole, is not proof against the temptation to settle logical questions offhand upon grounds of mathematical analogy; as where, for

example, he urges against the doctrine of logical Conversion the usage of the mathematician who "would not think it worth mention that if $x=y$ then also $y=x$" (p. 56); obviously begging the very point in question as to the identity of subject and predicate with the terms of an algebraical equation. So much for the fundamental analogy. For the rest let us hear Mr. Jevons himself on the other side of the question. At p. 81, he tells us that originally he agreed with Boole in using the sign + for the conjunction *or* as marking logical alternation, but agrees no longer because the analogy between mathematical addition and logical alternation is "of a very partial character." Then he adds "that there is such profound difference between a logical and a mathematical term as should prevent our uniting them by the same symbol." Now I do not suppose that in this last statement, general as the wording is, Mr. Jevons is thinking of anything but the particular symbol + which he is anxious to extrude from logic; but I do not see why it does not tell with equal force against the use of the symbol =, the true fount and origin of the evil against which he finds it thus necessary to protest. In short we have not yet got from Mr. Jevons a practical, any more than a theoretic, reason for the introduction of the fundamental symbol, and we do find him uttering a most impressive warning against a practical danger which it most naturally entails. The justification of the first step we must therefore look for elsewhere, namely, in that perfectly harmonious doctrine of reasoning which, we are led to suppose, can thus and not otherwise be developed.

The mode of reasoning first considered by Mr. Jevons, Direct Deduction, consists, as before mentioned, in Substitution practised under the one law of Identity, or, in other words, upon the premisses as given. Here, neglecting minor matters, let us at once note the points which he seeks to make against Syllogism, to the advantage of his own method. The syllogistic doctrine, he says, (1) takes no account of inferences involving Simple Identities either exclusively or along with Partials, and (2), where it is applicable, namely to Partial Identities, it draws an incomplete conclusion (p. 69), nay sometimes even a dubious one (p. 72), while it does its work always in a clumsy incomprehensive way (p. 67) and moreover has to be supplemented by elaborate rules for the avoidance of Fallacies (p. 75). These two last heads of the second charge cannot be met without comparing in detail Mr. Jevons's plan for obviating the special doctrines of Figure and Mood and of Fallacies, and I will merely say that the attentive reader will find the simplification much more apparent than real.* The main

* The reader will also find some wholly misdirected argument on p. 76

charges against Syllogism one is bound to meet. For this it is important to note what Mr. Jevons means by logical conclusion or Inference. He finds it not easy to say, but at last (p. 137) commits himself to the assertion that "logical change may perhaps best be described as consisting in the determination of a relation between certain classes of objects from a relation between certain other classes." Now turn to the "inferences," as he calls them, which he charges "the ancient syllogistic system" with overlooking. Prominent among them are assertions of "equivalency of words," interchangeability of definitions and the like (pp. 62-5). But these are no inferences at all, either as understood by any serious upholder of syllogism or, as we have just seen, by Mr. Jevons himself. It is true that amid such utterly trivial cases of verbal re-expression Mr. Jevons cites some cases of true (formal) inference from real compound assertions in the form of equations (see in particular one at the head of p. 64), but Aristotle, as already suggested, did by no means overlook such, though very rightly he did not make them fundamental in his system. As for the charge of incompleteness brought against the common syllogistic conclusion, let it be given in Mr. Jevons's own words: "From Sodium is a metal and Metals conduct electricity, we inferred that Sodium = Sodium metal conducting electricity, whereas the old logic simply concludes that Sodium conducts electricity" (p. 69). I ask which form of the conclusion best corresponds with Mr. Jevons's own definition of logical change or inference. There is some meaning in calling the common syllogistic conclusion an inference (formal): Mr. Jevons's so-called conclusion is a summing-up—a compendious description. Lastly, the still graver charge insinuated that the syllogism sometimes yields a conclusion that is open to positive misinterpretation (p. 72) has only to be looked at to fall away. From the two assertions, Potassium is a metal and Potassium floats on water, the syllogistic conclusion is that Some metal floats on water. Mr. Jevons objects that some metal (or, as he writes it, metals) is here liable to be understood too widely, when in fact all you can be sure of from the premisses is that the one metal potassium floats. But he ought to remember that *some* in logic means *not-none* and that only. How can it then be understood here too widely? In what respect is the

where Mr. Jevons contests the universality of the rule that two negative premisses yield no conclusion. The example he urges by way of exception is no exception. There are *four* terms in the example, and thus no syllogism, if the premisses are taken as negative propositions; while the minor premiss is an *affirmative* proposition, if the terms are made of the requisite number three.

conclusion not perfectly exact? His own expression Potassium metal=Potassium floating on water, if it can seriously be called a conclusion at all, is not a whit more safe against misinterpretation. Because it does not prove that gold will not float, anybody who cares may stoutly maintain that gold perhaps may. Logic is not meant nor has any power to bar out wilful irrelevancies.

So much for Direct Deduction. It is however in the Indirect Method of Inference that Mr. Jevons's doctrine culminates, affording that solution of the general problem of logic which is the true mark of its superiority. Unfortunately it is just at this stage that it becomes impossible to give in brief form a satisfactory statement of the doctrine as a basis for criticism: Mr. Jevons himself without wasting words takes not a few pages to expound the method fully. The method reposes ultimately on the fact that, under the law of Excluded Middle, anything in logic may be expressed in terms of anything else—in the form, namely, of the disjunctive propositions A is either B or not-B. Conceive then a set of premisses involving several terms (two, three, four, &c.): what possible alternative combinations of the terms there are, without reference to the premisses, may always be fixedly determined, and what particular combinations are possible with reference to, or consistently with, the premisses may then be determined by a process of substitution followed by an application of the law of Contradiction. Those to whom this statement is obscure must go to the book itself, where they will see the whole method not only clearly set forth and copiously illustrated, but gradually brought into such a shape that the machine devised by Mr. Jevons does the purely logical part of the whole process.

It should in any case be evident why Mr. Jevons lays particular stress upon the relation of Disjunction or Alternation and devotes a special chapter to it, though some may wonder why in a theory of pure logic he takes no express account of the relation of Reason and Consequent in hypothetical propositions, upon which disjunctives have hitherto generally been supposed to depend. As it stands, the chapter on Disjunctive Propositions contains much that is of value. Mr. Jevons argues strongly for the view maintained by some logicians (Whately, Mansel, Mill, &c.), against others (Hamilton, Boole, &c.), that *either-or* does not mean *if the one then not the other* but only *if not the one then the other*. Without adopting all his arguments (for here as elsewhere he does not distinguish sufficiently between mere verbal expression and real thought) one can agree with his conclusion so far as to say that logical alternation does not universally mean more

than is conveyed by the second of the two hypothetical expressions. It is not clear, however, why Mr. Jevons should argue so elaborately for his conclusion. The alternation he has in view for the development of logical terms under the law of Excluded Middle, as in A is either B or not-B, is one where the alternatives are mutually exclusive; and in no other sense of Alternation can he describe it (which he does at the beginning of the chapter) as a process equal to that otherwise known as logical Division—the inverse process to Generalisation.* All this, however, by the way.

What, then, shall be said of the Indirect Method itself? Undoubtedly it does accomplish all that Mr. Jevons claims for it; and that he has sought not without success for a method which shall solve the problem of logic generally is a merit of which no criticism can rob him. One may hold the method to be artificial and demur to its theoretic base; nevertheless it does what it professes to do, does it more simply and satisfactorily than previous systems (like Boole's) that made the same professions, and *apparently* it does what the traditional system of logic cannot do. Whatever may be said in favour of the bases of the traditional system, it cannot be denied that its supporters have shown the most persistent indisposition to develop it into an effective universal method of reasoning. It has been passed on from century to century in a crystallised form; it appears to admit of no development—nay the boast has been made (though ignorantly) that it was completed once for all by Aristotle; and practical influence over reasoning, except with a certain narrow range, it seems to have none. For all that appears, the adherent of the old logic gets little or no benefit from his science the moment an argument becomes truly complex and passes beyond a small number of rigid forms. No wonder that earnest logicians like Mr. Jevons, anxious for a truly general theory, should be tempted to break away from a system that has proved so barren, and grasp at analogies that may procure for the theory of reasoning something of the pliability and fruitfulness belonging to the science of mathematics. The temptation granted, it cannot be too often repeated that Mr. Jevons has signalised himself above other innovators in devising a system that is practically effective without sacrificing (like Boole's) the independence of Logic altogether.

At the same time it may well be doubted whether Mr. Jevons would not have done better, if, instead of reconstructing logic

* Mr. Jevons says Abstraction (p. 79), but this must be a slip. The inverse of Abstraction is not Division but the well-recognised process of Determination.

from its foundation, he had entered into the spirit of the older system, and, seeing it to be theoretically sound, had indulged his scientific ardour in developing that system so as to make it practically fruitful and useful. All the criticism which it is here possible for me to make upon his crowning Indirect Method is, that I believe it would have cost far less trouble to develop the traditional doctrine to meet the cases of complex reasoning he has in view than to devise a brand-new system to the confusion of Aristotle. It is a case where one must have regard equally to soundness of theoretic principle and to ease of practical application. In the foregoing remarks it has been urged in various ways that the older logic is theoretically sound in its bases and that Mr. Jevons's system is theoretically unsound. How shall one decide between them on the other count of practical utility? Would it be unfair to take the most complex instances of reasoning which Mr. Jevons cites as high triumphs—the highest he gives—of his method, and, if one could show that they are more easily solved by the old logic properly interpreted, then infer that even on the practical side the new system is inferior? It would not be a decisive test, for Mr. Jevons might bring forward still more complex problems which one knows not beforehand if one could resolve: but at all events it would not be unfair, nor for that matter undecisive against Mr. Jevons as he appears deliberately in his book. Well then! I affirm that the most complex problems there solved up to those on p. 117 can, as special logical questions, be more easily and shortly dealt with upon the principles and with the recognised methods of the traditional logic; and till I have cases put before me where this doctrine proves to be practically impotent, I am bound, in consideration of its clear theoretic superiority, to prefer it to the system, however ingenious, of Mr. Jevons.*

EDITOR.

* Take his last and most complex example: "Every A is one only of the two B or C, D is both B and C except when B is E and then it is neither; therefore no A is D." Here the mention of E *as* E has no bearing on the special conclusion A is not D and may be dropt, while the implication is kept in view; otherwise, for simplification, let BC stand for "both B and C," and *bc* for "neither B nor C." The premisses then are

(1) D is either BC or *bc*
(2) A is neither BC nor *bc*

which is a well-recognised form of Dilemma with conclusion A is not D. Or, by expressing (2) as A is-not either BC or *bc*, the conclusion may be got in Camestres. The reader may compare Mr. Jevons's procedure on p. 117. If it be objected that we have here by the traditional processes got only a special conclusion, it is a sufficient reply that any conclusion by itself must be special. What other conclusion from these premisses is the common logic powerless to obtain?

V.—PHILOSOPHY AND SCIENCE.

II.—As regards Psychology.

I have now to advert to a peculiarity which will open up an entirely new branch of the subject. The distinction which has been established in my former paper between the subjective and objective aspects, and which is the basis of that between Philosophy and Science, is one which rests on the support of no previous theory as to the substratum or agent of Consciousness, any more than it rests upon any theory as to a corresponding substratum of Matter, or generally of the objective aspect. No soul, or mind, or ego, or nervous organism, is assumed as the thing which *has* the states of consciousness. No material existent is assumed as the thing which has the properties of resistance or impenetrability, or which is the seat of the forces by which matter is actuated.

On the contrary, and this is the point now specially to be noted, the distinction between the subjective and objective aspects precedes and is required for the formation of any such theory, of whatever character it may be, relative either to Mind or to Matter. This will be clear if we reflect that, before we can devise an hypothesis to account for the existence of either aspect apart from the other, we must have distinguished, however roughly, the two aspects themselves.

Now it will no doubt have occurred to readers who have followed me up to this point, that there has been an important omission in my enumeration of the sciences which run up into philosophy. I have omitted all mention of the science of Psychology. This omission I am about to rectify. Psychology has all states of consciousness for its object-matter; and so far it has precisely the same object-matter as that here attributed to philosophy. Now psychology is a science, and that science which is the peculiar glory of Englishmen, having been if not created yet chiefly cultivated by them. It would seem then that, by simply adding the science of psychology to the list of the other sciences, we cover the same ground and perform the same service as we should do by superposing philosophy on the sciences, as something generically different from them. One or the other appears superfluous, and in such a case the simplest expedient must be the best, and philosophy must give place to a less pretentious rival.

It is here that the remark just made finds its application. The main purpose of Psychology is to investigate the laws by

which different states of consciousness either co-exist or follow one another; it leaves behind it the mere analysis of particular co-existences and of particular sequences of conscious states, and by comparing several instances of them endeavours to discover the general laws which connect particular states into sequences or into co-existences. It seeks the conditions of their appearing in this or in that connection. Leaving their mere analysis, which assigns their elements of analysis, their nature, or their conditions *essendi*, it seeks their conditions *existendi*, that is, their genesis and history. It assumes them, therefore, to be not only distinguishable, as in analysis, but also separable, capable of existing as parts in different connections or wholes. It starts from states of consciousness as units, not indeed necessarily capable of existing alone, but still units capable of entering into various combinations.

But this search for the laws, or relations of dependency one on another, between states of consciousness is at once guided by facts to the objective aspect of the states of consciousness, excluding their subjective aspect. It is "things" outside the body which appear to cause "subjective states" within the body. The search for laws of dependency forces us not only to separate the states of consciousness from one another, but also to separate states of consciousness as subjective from their objective aspect, that is, from the same states of consciousness as objective, in other words to separate Subjects generally from Objects generally. For relations of dependency have in all other sciences been found to exist only where the thing from which the dependence moved, that is, the condition or cause, was of a solid and material nature, a substance, capable of existing ἐνεργείᾳ. Psychology, therefore, in seeking the conditions *existendi* of subjective states, seeks them in the laws or in the nature of substances, only reserving the question whether there is, beside the organism and the objects external to it, a substance residing in the organism, but of an immaterial nature, that is, a Soul or Mind. Psychology passes in this way beyond the field of mere subjective-objective analysis, and envisages the particular relations of dependence which particular portions of the subjective aspect have to particular portions of the objective. And it is therefore not permitted, like philosophy, to abstract from the substrate or agent which has the states of consciousness; for it is only in and by such a substance or agent that the causal nexus in its sequences and the dependence in its co-existences can be accounted for.

But if this is the distinction between philosophy and psychology, the question immediately arises—May not philosophy,

then, be regarded as a part, the analytical part, of a larger whole, psychology? There are two main reasons against so regarding it. The first is drawn from another application of the remark above made: to do so would involve an inversion of the logical and historical relations between the two. *Historically*, there was the germ of a philosophy, a distinction between the objective and subjective aspects, before there was the germ of a psychology, an inquiry into the conditions of existence of the phenomena of the latter. And *logically*, the distinction of the aspects is the prior condition of the inquiry; for distinction must precede separation, and, as we have seen, it is psychology that first separates the two aspects, in doing which it gives back, as an object of direct consciousness, things which were in philosophy the object of reflective consciousness.

Here we come to the second reason. The analysis of states of consciousness as given in philosophy takes those states in connection with their objective aspects; these objective aspects it is which give us the states to be analysed; but in psychology it is in reference to their conditions in the organism, or other substratum, that they come under analytic dissection. The former is a general, the latter a special, method. There is a common object-matter for analysis, namely, states of consciousness, in both; but in philosophy we look for features which reproduce the world at large, in psychology for features which we can connect, as dependents, with qualities or properties of the conscious organism, or other substrate of consciousness; disconnecting them from their objective aspects in the world of existences, and thus assuming the *separability* of the subjective and objective aspects. And necessarily so, for we are here occupied with the question, among others, how far the subjective states of consciousness are a correct image and reproduction of the objective world. But when we take these same states of consciousness in philosophy, we disconnect them from their conditions in the conscious organism, and connect them with their objective aspects in the world of existences; thus assuming the *inseparability* of the subjective and objective aspects. And we are enabled to do this without danger of erecting subjective fictions into truths, because in philosophy we do not begin with the subjective aspects, but with the objective; we take the ultimate truths of the sciences, and inquire what are their subjective aspects, and do not take any supposed ultimate subjective aspects, and ask what their objective aspects, what their corresponding existences, must be. The method and assumption of philosophy are, in this

sense, diametrically opposite to those of psychology. It is a different but perfectly legitimate way of looking at the same phenomena, though in so looking at them they assume a different complexion, and give rise to a different set of distinctions and definitions.

I argue, therefore, that it is not permissible to classify psychology and philosophy, so opposite in point of method, so different in point of object-matter, as parts of a single science; and still less permissible to call philosophy the analytical part of a larger whole, psychology, seeing that philosophy is not only prior in logic and larger in scope, but also has a method corresponding in generality to its larger object-matter.

For let us consider for a moment what it is that constitutes a separate science, and demarcates one science from another. It is not merely an arbitrary difference in point of object-matter; nor yet is it an arbitrary difference in method; but it is the mutual determination of method, in the first instance, by object, and then of object, in the second instance, by method. There is no science of the individual, nor yet of any individual class of things. It is always a general feature or features which is the object of a science. The same individual things are the object of Mechanic by reason of displaying the general feature of potential and kinetic energy, and the object of Chemistry by reason of displaying the general feature of molecular affinity in composition and decomposition. Wherever any general feature is such as to be accessible in a particular way better than in others, that way of access is the method of the science, and that general feature, wherever found, is its object-matter.

Physiology investigates the general feature, Life, wherever found; that is, in living organisms of all varieties. Psychology investigates the general feature, Consciousness, in living organisms, that further feature in them not investigated by physiology. The range of psychology is an enlargement of that of physiology, for only objects in local contact with the organism directly influence its vitality, whereas things not in local contact, but imagined only, may be said to influence its consciousness, and indirectly its vitality — such merely imagined things being the index and evidence of nerve-processes which at once subserve consciousness and are endowed with vitality.

Psychology, then, differs from physiology in this, that it brings in subjective states as part of the general object, Vitality of organisms, and thus gives a new complexion to the phenomena of vitality; it has the old object-matter with additions,

and therefore in a new shape. For its method it depends partly on Reflection; as we have seen above, that the subjective aspect must first be *distinguished*, before it can be *separated*, from the objective. But psychology is not the first science to make this use of Reflection, to adopt and employ the distinction of subjective and objective aspects. All the other sciences require it in the same way; the difference is, that they bring into their object-matter portions of the objective aspect only, *i.e.*, Things, the external world; whereas psychology brings into its object-matter subjective states as such.

But what most decisively distinguishes philosophy from psychology, as well as from all the other sciences, is its elevation of Reflection into a method. And this elevation introduces a new feature into the general object-matter, namely, the feature of inseparability of the two aspects. They never were, in fact, separated; but this fact had not been adverted to. To advert to it, to become aware of it as a general truth, is to elevate the act or process of Reflection into a method. In employing it we continually ask what we mean by such and such terms, what is the analysis of such and such percepts. We have thus a method which is all-embracing in its scope, for there is no word, no thought, of which this question may not and must not be asked.

While therefore philosophy is a further differentiation of the general object-matter of psychology and the other sciences, it is also a new method, and the method corresponds to the differentiation. Method and object-matter together make it a separate science, demarcated from psychology very much as psychology is from physiology. Some perhaps there are who would class psychology as a part of physiology, or both as parts of biology. But however we may class them nominally or for occasional convenience, the difference of method, mutually determining and determined by the difference of object-matter, is that which it is practically as well as theoretically important to observe and retain; for it is this which constitutes the permanent articulation of the scientific system, and this by which it corresponds to the distinctions of nature. On this ground therefore I contend, that philosophy is demarcated from psychology by a difference as permanent and complete as that which demarcates psychology from physiology, or any one of the special sciences from the rest.

Let us now cast a glance at the practical bearings of the subject. Philosophy, it has been maintained, is not a part of the larger whole, psychology, in point of theory at least. Is there any reason for treating it in practice as if it were so? If there is, it must be based on the fact

that a better and more searching analysis is afforded by treating philosophy as a part of psychology, than by taking it separately and then making it an independent ally. I maintain that there is no better but a worse result on the whole to be anticipated from pursuing the two as if they were one, and that one psychology, than from pursuing the two independently and using each to correct and control the other.

The practical difference may be seen by comparing what is called the English School of philosophy with the Continental. From Bacon downwards all our philosophical writers with but few exceptions (and even in these the theologian has usually preponderated over the philosopher, as in Berkeley and Coleridge) —all our philosophical writers are dominated by the notion of a separation between consciousness and its objects, and approach philosophical questions with the notion of settling what we can know of objects, with what certainty we can know it, and what our wisest course of action is in consequence. But this is to adopt the distinction between the mind in its organism and the world external to the mind, as an ultimate one. Our English writers are thus psychologists in the above explained sense of the term, and not philosophers in the strict sense. All our great triumphs have been won on this basis. Bacon's "Homo naturæ minister et interpres tantum facit et intelligit, quantum de naturæ ordine re vel mente observaverit, nec amplius scit aut potest," shows this in the most unequivocal manner; and so also does the whole First Book of the *Novum Organum*, with its demolition of the Four Idols, and its methods of sound philosophising. The same presupposition is obvious in Locke's* disproof of Innate Ideas. Berkeley's Idealism again, based on his Theory of Vision, is a psychological theory; it resolves the connection between consciousness and its material and external objects, assumed as a causal one, into a causal connection between the mind and its states of consciousness. Hume's system, based upon Berkeley's, and applying his principles, evaporated substantial Mind as completely as Berkeley had evaporated substantial Matter. It was the suicide of a non-philosophical psychology, and was immediately followed by Kant's philosophical reconstruction. Hartley is a thorough-going physiological psychologist, establishing the complete dependence of consciousness on its organism. Very

* See Mr. T. H. Green's masterly disquisition on Locke, Berkeley, and Hume, in the General Introduction to his and Mr. Grose's recent edition of Hume's *Philosophical Works*. The truth of what I here state about these writers cannot be more fully or more conclusively shown than by that disquisition.

rarely does John Stuart Mill rise fairly and indisputably into the philosophical region, and when there he takes but a short flight; one such occasion is when, in his *Examination of Sir William Hamilton's Philosophy*, he defines Matter as a "permanent possibility of sensation." The existence of Mind, to which he next proceeds, fairly baffles him. Yet this happy invention of a phrase which will render a philosophical conception familar to English readers is a great service to philosophy. When we come to living writers, we find in the speculations of most of them no difference, I at least can find none, in respect to the principle now in question, from those of the great English writers who have preceded them. Take, for example, Mr. Spencer. Although he distinguishes subjective psychology from objective, and maintains of the former that "under its subjective aspect, Psychology is a totally unique science, independent of, and antithetically opposed to, all other sciences whatever. The thoughts and feelings which constitute a consciousness, and are absolutely inaccessible to any but the possessor of that consciousness, form an existence that has no place among the existences with which the rest of the sciences deal;" and though this might seem amply sufficient as an admission of the philosophical principle of the necessity of a subjective and analytic method; yet Mr. Spencer immediately and even in this very enunciation falls back into the separation between the objective and subjective aspects: "Mind still continues to us a something without any kinship to other things;" and Psychology consists of two totally-independent aspects, objective and subjective,"—the two forming together a double science which, as a whole, is quite *sui generis*" (*Principles of Psychology*, I., pp. 140-1). Mr. Spencer has not seen that it is Reflection, in subjective psychology, which perceives the two aspects subjective and objective, and that the two, as so perceived, are inseparable and co-extensive. He speaks of several classes of nervous changes which "have objective aspects only—do not present inner faces to consciousness; and others have subjective aspects in early life but cease to have them in adult life" (p. 104). If so, I would ask, if these nervous changes have *no* subjective aspect, how is it that he is aware of their existence? Mr. Spencer takes the proximate *conditions* of subjective states (conditions *existendi*) for the objective *aspects* of those states.

Mr. Spencer's conception of the subjective aspect of Psychology, then, would be totally inadequate to serve as a Philosophy, if any one should put it forward to do so; for it is deficient in generality. Mr. Spencer *distinguishes* it from objective science, and this, so far as it goes, would enable it to serve as a

philosophy; but he does more, he *separates* it from objective science in separating it from the objective aspect of things. But if there are objective aspects of things which have *no* subjective aspects, as the last quoted passage shows him to maintain, then the subjective aspect of things, and the subjective analysis which deals with them, must be quite inadequate to deal with things in their most general relations and laws, that is, to philosophise about them.

The comparative narrowness of this point of view is seen when we turn to the development of philosophy in countries where the distinction between man's knowledge and the world external to man was not the dominant one. Beginning with the publication of Telesio's work, *De Natura Rerum juxta propria principia* in 1565, we find in Italy a philosophy of nature ripening into the large all-embracing systems of Giordano Bruno and Campanella. "Bruno and Campanella worked at a metaphysic entirely new, which was to be a metaphysic of identity, to replace the metaphysic of Aristotle, which may be called one of duality and opposition."* And if these two great minds still sought to explain the universe by means of entities imagined out of abstractions, this was no more than was inevitable for men, in that early age, who refused to envisage the problem before them in anything short of its true and vast proportions, and who would have scorned to claim for themselves the title of philosophers while leaving others to solve its hardest questions and encounter its deadliest enemies. English philosophers on the other hand, in declining the pursuit of "formal and final causes" as "barren virgins consecrated to God," were in truth declining for themselves the arduous attempt to include Theology in the philosophical domain, and were thus compelled either to accept it ready-made from the theologians, or leave it to be criticised and combated by others. It is the poets and not the philosophers, it is our Marlowes, our Shakespeares, our Miltons, our Shelleys, who in England have been the real antagonists of a narrow and unphilosophical theology.

Three words are the imperishable contribution of Descartes to modern philosophy, possibly his only incontrovertible one. But these three words are the morning-star which ushers in the new day. In the famous *Cogito ergo sum* is expressed the distinction between consciousness and its objects, in contrast to that between man's knowledge and the world external to man; the fundamental distinction of philosophy as opposed to the fundamental distinction of psychology; the assertion of

* Fiorentino's *Bernardino Telesio*, II, p. 183.

the moment of self-consciousness or reflection as opposed to the moment of direct consciousness or direct perception.

In Leibniz, with whose mind all modern Germany is impregnated, we have again a system of philosophy including psychology within it. The monad of Leibniz was not the monad of Bruno; but, says Sig. Fiorentino, (II. p. 105), "for all that, Bruno and Leibniz have as much resemblance as was possible for two philosophers between whom Descartes had intervened. Bruno, prior to the Cartesian reform, would find the union of opposites in nature; Leibniz, who came after it, in subjective thought, in that power of reflecting the universe which each monad carries within it."

But it was not until Kant that the Cartesian moment of self-consciousness was to become explicit, militant, and finally dominant. And this is the reason of the supreme importance of Kant in philosophy. The difference between the two principles of psychology and philosophy, I mean the two moments of direct and reflective consciousness, the latter involving a distinction without a separation, the former a separation following on a distinction, was dormant and unperceived until Kant, who himself held them both without perceiving their incompatibility, endeavoured to combine them, in the *Critic of Pure Reason*. Kant endeavoured to hold together, as principles equally dominant, the notion of a Mind endowed with faculties and that of a moment of self-consciousness, the so called unity of Apperception. And Kant's system exploded into fragments because it contained these two principles in this close juxtaposition. This showed that one of them was a fiction; there are no such things as innate forms either of the faculty of intuition or of the faculty of thought. This is not yet understood by us English. We are still occupied in expounding Kantianism, as if it was a living system. You might sooner rebuild Solomon's Temple. It is just an instance of what I said at the beginning of the preceding paper about the use of systems; Kant's system was the means of verifying the principles which he believed himself to have discovered, and resulted in the establishment of some, the discrediting of others.

To have, then, two fundamental principles at once, essentially different yet professing to cover the same ground, is impossible; either one must be retained and the other discarded, or else a *modus vivendi* must be found and a separate function assigned to each. Most of the German post-Kantian systems have attempted to discard the psychological, the English the philosophical principle; and to select and discard exclusively either the one or the other would be easy enough, if only facts would allow you to ignore the one which you have discarded. But

this is impossible. Sooner or later an exclusive philosophy is wrecked on the rocks of science; and an exclusive psychology on the rocks of philosophy. To discover a *modus vivendi* between the two principles, then, and thus to form a single philosophical whole, with its two doctrines, philosophical and psychological, contra-distinguished and yet combined, so that each may illumine, control, and support, the other—this has been and is the problem of philosophy from Kant's time to ours. It is not a question of sacrificing either, but of combining both in the places and with the functions which each is suited to perform and fill. Now the philosophical principle has been shown above to be the broader and more general of the two, and the questions which spring from it remain to be answered when the psychological principle has adduced its last proof and said its last word. It is a power which must be reckoned with, since it cannot possibly be either ignored or transcended. And we possess in philosophical analysis a mode of criticising all non-scientific speculations, to the irruptions of which the territory of science is constantly exposed, and against which science has no weapon of its own but that of attempting to ignore them. Philosophy in short is alone competent to deal with speculations which, whether they are tenable or whether they are absurd, spring at any rate from a reflective source, and consequently are of a philosophical character.

The English school of thought was based on the acceptance of the scholastic doctrine of Nominalism as a sufficient basis of philosophy. The philosophical schools of the continent on the contrary did not regard any of the three scholastic doctrines usually known as Realism, Conceptualism, and Nominalism, as capable of affording such a basis. In this they were certainly right; the question between these three doctrines, though most important, is a partial one, totally unfit to serve as a basis of philosophy. It concerns what are called Universals, that is, Concepts;—whether they exist or do not exist in Nature. Nominalism left behind it a large field of questions untouched, relating to Percepts. When Locke, for instance, maintained *Nihil in intellectu quod non prius in sensu*, another answer than that of Leibniz—*nisi ipse intellectus*—was at hand; an answer consisting in the further question—But what is *in sensu?* This answer it was which was formulated by Kant, a formulation which was itself open to the objection made above, namely, that it assumed the Mind as separable from the World, by assigning one element of sensation to the Subject and another to the Object. Further analysis than Kant's, but in the same general direction, was therefore a necessity. But the English school ignored the

possibility of such an analysis of Locke's *sensus*. They assumed sensations as the atoms, so to speak, of consciousness; and even now, though admitting that these atoms may have distinguishable elements, they do not in practice lay any stress on distinguishing them.

Mr. Spencer's *Principles of Psychology* will again furnish us with an illustration. Accepting as really simple those constituents of Mind which are not decomposable by introspection, he mentions two kinds of proximate components of Mind—Feelings and the Relations between feelings. "Each feeling, as we here define it, is any portion of consciousness which occupies a place sufficiently large to give it a perceivable individuality; which has its individuality marked off from adjacent portions of consciousness by qualitative contrasts; and which, when introspectively contemplated, appears to be homogeneous. These are the essentials. * * * And obviously if it does not occupy in consciousness an appreciable area, or an appreciable duration, it cannot be known as a feeling." "A feeling proper is either made up of like parts that occupy time, or it is made up of like parts that occupy space, or both" (I. p. 163-5).

Here we have what I have called, in my former paper, the pure time and pure space elements of percepts. The feelings proper, though not decomposable by introspection, have yet elements which introspection distinguishes. They are empirical units but metaphysical concretes. Mr. Spencer however leaves behind him their analysis, and passes to the examination of their interconnection. He goes no farther back in analysis than is requisite for his Psychology, no farther than to those units of consciousness which correspond to his ultimate units of physiology, his single hypothetical "nervous shocks." But these units of consciousness are not simple but complex, if we look at them subjectively. In the analysis of direct perception, therefore, there is a great field left untrodden by one of the ablest of modern psychologists.

But the ultimate analysis of perception in reflective or self-consciousness, and not merely in direct, is the question on which philosophical controversy must chiefly hinge, at least for the present. It involves the question of the possibility of the alleged "Intellectual Intuition," of envisaging a substratum common to the two modes of existence, consciousness and objects of consciousness, and of all the various forms which this mode of speculation may assume. And the analysis of direct perception to its furthest limits, not stopping short at Mr. Spencer's admission that it can be analysed, is a prerequisite for the analysis of reflective. It will not suffice for

psychology to throw the *onus probandi*, e.g., the proof that we have a "faculty" of Intellectual Intuition, on supporters of the systems of speculation contemplated. The question is one concerning the *contents* of experience, not concerning its *conditions*. It will not do to say,—we have no "organ" for procuring us such and such experiences; we must first inquire what experiences we actually have, and then will follow the question, what "organs" are those by which they are procured. So long as psychological schools can be fairly taxed with narrowness of basis, with not embracing philosophical problems in all their length and breadth, they may hold their ground as science, but they cannot be regarded as judges in matters of philosophy, or pleaders in matters of theology.

Looking finally at another part of the practical bearing of the two methods, the reaction which they exercise on their disciples, we shall find a similar conclusion indicated. The practical result of the larger view of the scope of philosophy, and of the discussions raised by the introduction of the Cartesian moment of self-consciousness into philosophy, both before and after Kant, has been to render philosophy more searchingly analytic. Hardly any analysis of conscious states pure and simple is to be found in English writers, whose strength is expended either on the physiological and physical conditions of those states, or on their sequences in consciousness itself under the title of laws of Association. In German writers, on the other hand, analysis of this kind is very frequent and very excellent. They map the country before exploring it in detail. The works of Leibniz, and especially of Wolff, are storehouses of distinctions; Kant analyses and analyses again, first from one point of view, then from another, making each new analysis throw light on former ones. If of Hegel's great system not one stone should remain upon another, his all-penetrating, all-comprehending analyses will for ever remain as instructive and as stimulating to the mental powers, as are those of Plato and those of Aristotle, whose systems have long ceased to find disciples.

Far be it from me to depreciate the powers or the achievements of my countrymen. I glory in Bentham, in Locke, in Hobbes, in Bacon; I glory in William of Ockham and all his train:—

> "πλατεῖαι πάντοθεν λογίοισιν ἐντὶ πρόσοδοι
> νᾶσον εὐκλέα τάνδε κοσμεῖν."

But yet is there a more excellent way; and we shall not merge our individuality by forming an alliance, nor need we strike our colours in setting sail upon a broader stream. *A greater*

and more comprehensive philosophy can arise in the line of Locke than can ever arise in the line of Leibniz; but only on the condition of replacing our narrow psychological horizon by an horizon of true philosophical range. This being done, our psychological and scientific method is at least as necessary to the soundness, as the philosophical to the comprehensiveness, of a complete philosophy.

Briefly, then, to resume the position at which we have now arrived, we may define Philosophy, in contradistinction to Psychological Science, as the ultimate analysis of states of consciousness in connection with their objective aspects, abstracting from their conditions in the organism; and in contradistinction to Science in general, as the subjective analysis of the ultimate notions of the Sciences. In both alike it has the three characteristics of being ultimate, subjective, and analytic. The first characteristic, *ultimate*, belongs to philosophy *ex hypothesi*. That is to say, only such inquiries as are ultimate, which stand nearest to and endeavour to penetrate farther into the unknown, the "dark foundations" of being, do we set apart as search and not as science. The second, *subjective*, rests on a simple fact of experience, the apparent reduplication of objects in subjectivity; consciousness being like light, which reveals itself and the object at once; the object and the object seen are one. The third, *analytic*, is determined by the process of Reflection being made the principle of the method pursued. But this third characteristic is open to the doubt, whether it entirely exhausts the possibilities of philosophy; whether it does not restrict philosophy to too narrow a field; whether philosophy itself may not be synthetic also. It is clear that philosophy, being subjective and ultimate, must be reflective, and therefore analytic of its object-matter; the question is, whether it is analytic only. The remarks which I have to offer on this point must be reserved for the following paper.

SHADWORTH H. HODGSON.

VII.—PHILOSOPHY AT CAMBRIDGE.

IF any one fifty years ago had been called upon to write a paper on Philosophy at Cambridge, he might reasonably have felt that he had been set to the ancient tyrannical task of making bricks without straw.

No doubt at this as at any other time in the history of the University, there were persons reading and reflecting on moral and metaphysical subjects—probably more than at most other

times, when, in Trinity alone, Whewell, Thirlwall and Hare were lecturing, and Maurice and Sterling were undergraduates. But the official recognition of such studies in the academic system had dwindled to the merest shadow of a shade; and there was as yet no resident writer on philosophy to supply such extra-official guidance or stimulus as would in any way impress the stamp of Cambridge upon the philosophical speculation still carried on within the limits of the University. Philosophy had, for all practical purposes, lost its old place in the Cambridge scheme of studies; and a new place had not yet been found for it. The old system of disputations for degrees, which had maintained some knowledge of logical forms and some interest in philosophical matters, had finally decayed into a pure ceremony and was on the point of being formally abolished; while at the same time the share possessed by moral and metaphysical philosophy in the modern system of paper-examinations, which had always been comparatively inconsiderable, was now quite evanescent. There was a little teaching of Locke in one or two colleges, but the life had quite gone out of it. Paley's moral system was still officially prescribed—it was still orthodox to maintain formally in the empty arts' schools that "recte statuit Paleius de utilitate"—but his method had lost all real influence: while yet the reaction against it had not found the definite and reasoned expression that Sedgwick and Whewell were presently to give to it. There was a Professor of Casuistry in existence: but he was still a **κωφὸν πρόσωπον** in the academic drama. Herschel's *Discourse on Natural Philosophy* had not yet come to break the frost of indifference with which methodology had been treated in the university of Bacon, and to commence a philosophical debate which is still vigorously continued, and in which Cambridge has taken an important, if not the most distinguished, part. The sway of Coleridge over the reflective youth of England was great and steadily growing: but the years he had spent in Cambridge had established no spiritual bond between him and his Alma Mater, and such influence as he exercised there was as essentially foreign as Bentham's at Oxford.

In fact, the educational movement in Cambridge was entirely absorbed in developing and determining the mutual relations of Classics, Mathematics and Physics: and was content to leave Ethics and Metaphysics to the care of Scotland and Germany.

In the half-century that has since elapsed a considerable change has taken place; though even now the position of Philosophy in Cambridge would hardly satisfy an ardent votary

of the study. Before proceeding to characterise this position more particularly, it may be interesting to explain how the university of More and Cudworth and Clarke passed into the state above indicated, and how it emerged out of it again: especially since such a historical sketch will lead us to anticipate the most important peculiarities in the present relation of Cambridge to Philosophy.*

But first it must be observed that in this inquiry it is peculiarly necessary to proceed methodically, and avoid ambiguity in our principal term. Most Cambridge men of the eighteenth century would have been much startled by being told that Philosophy was declining in their university. They would have replied that, on the contrary, sound and exact philosophical knowledge was just what their Alma Mater was exerting herself to maintain and spread. For the use of the general term Philosophy to mean Physics, which continental writers have noticed as an English peculiarity, has been especially at home in Cambridge since the time of Newton. No doubt the qualified term "Natural Philosophy" would always have been considered more proper and precise: but still "Philosophy" without qualification would have been commonly understood to mean Natural Philosophy. We find, for example, that the enlightened Dr. Jebb, describing the examinations of the university as they existed in 1772, speaks of the "transition from the elements of Mathematics to the four branches of philosophy, viz. Mechanics, Hydrostatics, Apparent Astromony and Optics. . . . The Moderator," he goes on to say, "having closed the philosophical examination sometimes asks a few questions in Locke's *Essay on the Human Understanding*, Butler's *Analogy*, or Clarke's *Attributes*." Many similar passages might be quoted, even from writers so recent as the late Dean Peacock.

I have drawn attention to this usage, not merely to prevent any confusion of thought, but because it takes us back to the right point of view for understanding the process by which Mathematics and Mathematical Physics became the peculiar study of Cambridge. The antithesis between Mathematics and Philosophy as educational instruments, which was defined and sharpened about forty years ago by the controversy between Whewell and Hamilton, was as far as possible from the minds of Barrow or Sanderson or the other active and enlightened teachers who were the chief agents in bringing about this change. It was no desertion of the study of

* My thanks are due to several Cambridge residents, with older or better-stored memories than mine, who have kindly supplied me with some of the facts mentioned in this sketch.

Things in General for the narrower though exacter study of Quantity Discrete and Continuous, that they had in view. It was rather the bringing into due prominence of the new kind of philosophy which Galileo and Descartes and afterwards Newton had developed to such striking results: by the side of which the older metaphysical studies must be allowed to contrast somewhat unfavourably. Of this new philosophy mathematics was clearly the indispensable organon. The accomplished Barrow, whose academic activity coincided with and partly constituted the first stage of this process, tells the students of his time that they show their love of true Philosophy in not wasting their time on disputations concerning "entia rationis, materia prima and such like scholastic chimeras" but in turning ardently to Mathematics instead. "Jam tandem vos serio Philosophiæ operam daturos bona spes est, Veritatis inquisitionem non tantum a dialecticis argutiis sed, quod antiquis philosophiis solemne erat, ab iis nobilissimis scientiis auspicantes" (*Oratio ad Academicos in Comitiis*, 1659). This ardour would naturally be much intensified, in both teachers and pupils, by the Newtonian discoveries. From one point of view these might fairly be regarded as a triumph for academic studies. A university professor, by the recognised academic method of syllogistic demonstration from abstract principles, had attained a grasp of reality which no mere observers or experimenters could have reached. It was not surprising that in the age immediately succeeding Newton the active and progressive portion of the university should be especially concerned with the development of these studies: nor that the sustained effort to spread the new truths and impart the method by which they had been won should have reinvigorated the educational functions of the university and restored life and reality to the exercises imposed as a condition of obtaining the first degree. In the final examination, reformed and raised in importance during this period, they thus naturally occupied the chief place; and even in the preliminary acts or disputations in the schools (which for a long time after the development of the modern system of paper-examinations continued to have considerable influence on the award of academic honours), physical questions from Descartes or Newton were discussed with more zest than the old scholastic topics could arouse.

At the same time, it must not be thought that the movement I am describing was in any sense intentionally directed against moral and metaphysical speculations generally. It was, no doubt, in conscious antagonism to the "dull, crabbed system of Aristotle's Logic;" but such antagonism found a welcome

ally in the modern psychology. In fact, it appears that Locke became naturalised at Cambridge about the same time as Newton; just as in the preceding century the study of Descartes had been encouraged by the Platonists. The same wave of reform that succeeded in enthroning the *Principia*, also established the *Essay on the Human Understanding* as the recognised storehouse of "quæstiones metaphysicæ." While Clarke, again—perhaps the most genuinely metaphysical genius that England has produced since the middle ages—was an ardent disciple of Newton, and took a prominent part in introducing the Newtonian physics into the educational course of Cambridge; at the same time that he was endeavouring to develop his master's views, on their theologico-metaphysical side, into a completely reasoned system of the universe, and to place the science of ethics on a footing as closely analogous as possible to that of mathematics. For a time Clarke's moral and metaphysical speculations seem to have had much currency in his university; and his *Attributes* kept till the end of the century a regular place in philosophical lectures and disputations by the side of Locke's *Essay*. But when the air of cogency worn by Clarke's demonstrations was well ascertained to be illusory, and it became plain that his system would end in argumentation as sterile as that of any scholastic metaphysician, the very comparison that it courted with mathematical and physical studies would probably tend to enhance the superior attractions of the clear, certain, progressive knowledge attainable by the latter.* At any rate, we find that, owing partly to the greater intrinsic interest of these latter subjects, partly to their greater fitness for the paper-examinations of which the influence seems to have steadily increased from the time of their first institution, and partly to the more sustained and concentrated labour gradually required from undergraduates if they would reach the ever-rising level of mathematical attainment, such ethical and metaphysical study as was still kept up occupied a gradually decreasing share of attention. So that in 1772 we have the state of things described by Dr. Jebb in the passage already quoted, when "a very superficial knowledge in morality and metaphysics" was held to suffice, as the highest academical honours were invariably given to "the best proficients in mathematics and natural philosophy."

A certain reaction, however, seems to have been taking place at the very time that Dr. Jebb wrote; at least, an attempt was made a few years after by the university authorities to

* Some effect of this kind is asserted by Law—an old Cambridge man—in his notes to King's *Origin of Evil;* but I am not sure that he is an impartial witness.

arrest the decline of the older studies. In 1779 a grace was passed, adding a fourth day to the examination, in order that one of the four days might be devoted to questions in "Natural Religion, Moral Philosophy, and Locke." This movement was probably due to the influence, if not of the energetic agitator himself from whose pamphlet I have quoted, at least of the set of ecclesiastical and academic Liberals of which he was a prominent member. This set included, we must observe, the one really influential writer on moral philosophy that Cambridge had produced since the beginning of the century, William Paley. Turning, with the prestige which even then attached to the position of Senior Wrangler, from the mathematico-physical studies which had gained him this distinction, Paley devoted himself during the years (from 1767 to 1776) in which he was lecturing at Christ's to the metaphysical and moral department of the instruction. It was not till 1785 that the substance of his lectures on moral and political philosophy appeared in the treatise since so well known; but we find that this book almost immediately on its appearance was introduced into the academic curriculum, and kept its place there till very recent times,—together with his other treatise on the *Evidences of Christianity*, which has not even yet been superseded. For half a century "Locke and Paley" figured as the inseparable pair of thinkers appointed by Cambridge as her philosophical representatives, much as "Aristotle and Butler" were at Oxford; and for some time, at least, the study of their systems, along with a few other works, formed a substantive part of a reading man's course. It seems that about this period it became customary, in "keeping an act" for the first degree, to select a moral or metaphysical thesis for actual disputation; and there is a tradition of men obtaining honours on the strength of their "Locke" as late as 1804.* But a really deep and widespread interest in the writings of Locke and Paley could not be maintained without fresh thought on their subjects; and as no indigenous thinker appeared to stimulate this, they were gradually "crowded out" of the course, partly by the irresistible development of mathematics, partly by the movement in favour of classical studies which led to the establishment of the Classical Tripos in 1822. The ancient system of disputations—for which "quæstiones ethicæ" and "metaphysicæ" had a natural affinity—and the ethical and metaphysical element in the paper-examination were destined to nearly simultaneous

* Archdeacon Hollingworth, Norrisian Professor of Divinity, was supposed to have gained his place in the Tripos by this part of his work. It should be observed, however, that his was an exceptional case, and that he was only a "Junior Optime."

extinction. In 1839 the last Act was kept; and about ten years before the traditional papers on "Locke and Paley" were, for the first time, avowedly constructed for the πολλοὶ only: whose brains not being burdened with mathematics were supposed to have room for a modicum of moral reflection. There were, as I have said, not a few residents in Cambridge at the time who were earnestly concerned for philosophy: but no one came forward to plead for this meagre remnant of the old system. It was probably felt that by the establishment of the Classical Tripos Cambridge had taken a finally decisive step in the direction of specialising studies. The old single course of education in what every well-educated man ought to know had been gradually compressed, by force of circumstances rather than the deliberate intention of anybody, into a somewhat narrow road to what had now to be acknowledged as a purely "Mathematical" Tripos: by the side of which another equally straight path had been opened to academic distinction, in the study of Greek and Latin. And since the distribution of the Fellowships had now come to depend, in the great majority of colleges, almost entirely on the university examinations, it would seem that if any other studies besides classics and mathematics were to gain the attention of the *alumni* of Cambridge, they must establish a claim to a Tripos of their own.

The ultimate achievement of this result, in the case of the Moral Sciences, may be traced to a combination of causes: but it is primarily to be viewed as part of a general reaction against the narrowness of the traditional Cambridge curriculum, which in some respects had only been made more apparent by the institution of the Classical Tripos. Very early in the career of this new Tripos it began to be felt that Greek philosophy deserved more distinct recognition in the classical course.* In Trinity College a succession of remarkable lecturers—Julius Hare, Thirlwall and Thompson—laboured to secure in their own college a somewhat more intelligent study of the works of Plato and Aristotle. Meanwhile on the other, mathematico-physical, side of Cambridge studies some general philosophic interest was aroused by the appearance of Herschel's *Discourse on Natural Philosophy* in 1831. A couple of years afterwards, Sedgwick's *Discourse on the Studies of Cambridge* and the controversy which followed it, still further stirred the waters. But it is to Whewell more than to any other single

* Whewell's book on *Liberal Education* shows that the change actually made in this direction in the recent reorganisation of the Classical Tripos was loudly demanded a generation before; *cf.* also Julius Hare's remarks in his *Life of Sterling*, pp. xii., xiii.

man that the revival of Philosophy in Cambridge is to be attributed. Although (as I have noticed), in his controversy with Hamilton and elsewhere, he maintained the superiority of mathematics and classics over all other studies, as the main instruments of university education, this conviction did not prevent him from making sincere and sustained efforts to secure for other sciences that place in the academic system which he conceived to be their due. For this end he worked not only in the modern external fashion by constructing examinations, but also by the older, more spiritual, method of teaching and speculating earnestly and effectively on philosophical subjects. In 1839, from the long silent chair of Casuistry, he began to deliver lectures on Moral Philosophy; of which at least the earlier, historical, courses were found highly attractive. Some years previously he had transformed the traditional paper on philosophy in the fellowship-examination of his own college, and made it an effective instrument for inducing the abler candidates for Trinity fellowships to undertake a systematic course of philosophical reading after their first degree. Meanwhile his own elaborate investigation of the methods of modern science was being prosecuted to fruitful and stimulating results. In 1840 his *Philosophy of the Inductive Sciences* appeared. Ten years later he took a chief part in constructing the first Moral Sciences Tripos. The scheme of this examination, however, was quite inadequate, being in fact formed by a combination, not of the different divisions or aspects in which philosophy is commonly studied, but of certain subjects in which the university happened to possess professors: thus it did not include Logic or Metaphysics, or even Psychology, except under the head of Moral Philosophy. But from the point of view of the students whom it was intended to attract this Tripos had the graver defect that it did not confer a degree: for the badge of inferiority thus attached to moral sciences, in comparison with mathematics and classics, rendered it difficult for them even to aspire to the substantial rewards which the colleges had to bestow. In 1860 this badge was removed, and at the same time a more complete scheme of examinations constructed; of which, though it has since been twice modified, the main features still remain. This final stage of development was reached with Whewell's consent and co-operation; but the most active part in effecting it was taken by the Rev. J. B. Mayor of St. John's—the college which about this time assumed the lead in promoting the study of philosophy, not only by instituting lectures, but by the still more important step of admitting this line of study to the crowning honours of a fellowship. The first fellow elected in Cambridge, for attainments in Moral

Sciences only, was the senior in the Moral Sciences Tripos of 1863, a member of St. John's. Three other fellowships have since been similarly awarded, and in the case of one or two more it is understood that considerable weight has been attached to distinction in this subject, though it has not been the sole ground of election. Scholarships are also given in St. John's, Trinity and occasionally in Downing for proficiency in this study. Thus, though the pursuit of Philosophy is as yet far from being on a level, in the general estimation of Cambridge, with Mathematics and Classics, it is no longer separated from this position by any definite and impassable interval. Until, however, this level is more nearly reached, it is difficult to say precisely how far the present paucity of the students who follow this pursuit—about twelve or fifteen each year—is due to the rarity of rewards hitherto obtained by it, or to the absence of prestige or of direct professional utility in the knowledge acquired, or to the intrinsic unattractiveness of the studies for most English minds, or to their want of affinity with the traditional habits and tendencies of Cambridge. Probably each of these causes co-operates to a certain extent. For some time after the second, more complete, examination was instituted, there was a want of teaching officially provided in the subjects: but no deficiency now exists in this respect, at least as far as quantity is concerned; as there are, in different colleges taken together, about five lecturers wholly or chiefly employed in this work. These lecturers are not for the most part appointed to teach any special subjects, but generally to prepare students for the Moral Sciences Tripos. For some years, however, a tolerably complete distribution among the lecturers of the subjects of Moral and Political Philosophy, Mental Philosophy, Logic, and Political Economy, has been attained by mutual arrangement: and it seems probable that this distribution will before very long be established on a more recognised and permanent footing.

In this historical sketch I have chiefly paid attention to the place of Philosophy in the university or college examinations and other prescribed exercises. Under the present system of elaborate and careful examinations, by success in which very large pecuniary prizes are obtained, this consideration is naturally prominent. In the Cambridge of 1876 it would be difficult for Aristotle himself to obtain a serious audience of undergraduates, unless his teaching was understood to "pay" in some Tripos. But in the earlier part of the history that I have briefly traced this was not so much the case: and even now, since Philosophy is eminently a subject for mature study, there seems no reason why a school of philosophical thought

should not be formed in Cambridge through the mutual communication of disinterested students and the general influence of some eminent teachers, whether officially established or not. In fact, however, since the 17th century, no such phenomenon has presented itself: and the element of personal influence has been conspicuously absent from the development of thought in Cambridge. Since Whewell converted the Professorship of Casuistry into a chair of Moral Philosophy, it has always been held by thinkers of decided intellectual force and productiveness: but it cannot be said that the teaching of any of the series has had any tendency to form a school. Whewell's lectures were at first largely attended; but when his own system of morality began to be developed, the interest seems to have fallen off. Perhaps the peculiar intellectual excellences of John Grote, subtle and balanced criticism, varied and versatile sympathy, were hardly such as qualified him—original as he was—to be the founder of a school. The case of Maurice affords a striking illustration of my remark, as his influence was at one time considerable in Cambridge, where his *History of Moral and Metaphysical Philosophy* found many readers; but it had ceased to be a real force, in the sphere of philosophic thought at least, before he became professor, and all the impressiveness and spiritual charm of his personal presence and conversation failed to revive it. I should be disposed to think that no indigenous thinker, for 150 years, has had an influence in Cambridge at all equal to that recently exercised from a distance, by John Stuart Mill. Hence, whatever is characteristic of philosophy in Cambridge must be referred rather to the general intellectual tendencies produced by her favourite studies and by the peculiar organisation of her academic system, than to any tradition of teaching, or any agreement in opinions due to the mutual influence of persons living in the same place and intent on the same inquiries. Since the time of the Platonists the history of Cambridge shows no philosophical school or sect, and scarcely any philosophical coterie: at least one observes no ideas or manners of thought going about the world which can be definitely traced to such a coterie. Still one may notice different degrees of receptiveness in the Cambridge mind to the thought produced elsewhere: certain departments or aspects of philosophy seem to have more attraction for Cambridge men than others. For example, a training in mathematics and physics is a natural preparation for taking part in methodological controversy. I have already spoken of the work of Herschel and Whewell in this department: and it is not out of place to notice the great literary monument which three Cambridge men

have recently raised to Bacon: since nothing that has been written about the *Novum Organum* can be compared for explanatory efficacy with Mr. Ellis's *Introduction*. Again the study of Natural Philosophy disposes the mind to be interested in hypothetical extensions of physical explanations to psychical phenomona: thus we find Hartley in Coleridge's time, and Herbert Spencer at the present day, exercising considerable influence at Cambridge. On the other hand, the university of Newton has been always averse to admit the claims of "Hegel and Schelling who could not understand that Newton went farther than Kepler had gone in physical astronomy, and despised Newton's optical doctrines in comparison with the vague Aristotelian dogmas of Göthe respecting colours" (Whewell on *University Education*). And, apart from the offence given by these scientific vagaries, the preference that the traditional training of Cambridge naturally generates for exactness of method and certainty of results in comparison with breadth and completeness of view is unfavourable to the ambitious constructions of post-Kantian metaphysics. Again, a mathematically trained mind commonly finds much affinity in Political Economy, especially as treated in the abstract deductive manner which has prevailed in England since Ricardo: accordingly this branch of Moral Sciences has found especial favour with Cambridge men. These characteristics appear to some extent in the scheme of the Moral Sciences Tripos: where exceptional stress is laid on Logic (including Methodology) and Political Economy, which are made departments co-ordinate with the larger but vaguer subjects of Mental Philosophy (Psychology and Metaphysics), and Moral and Political Philosophy; and where again the historical study of metaphysics is limited so as to exclude the post-Kantian developments in Germany. But how far these peculiarities are likely to appear in any school of philosophy, that may hereafter be formed at Cambridge, is hard to say: since the general tendencies of thought in England and the influence of any widely read treatises may easily prevail over the bias given by any particular educational system. However, to discuss the *future* of Philosophy in Cambridge is beyond the scope of the present paper. Of all the mistakes that men commit, as a distinguished humourist has observed, "prophecy is the most gratuitous."

HENRY SIDGWICK.

The following is the present scheme of examination for the Moral Sciences Tripos, omitting the fourth head, *Political Economy*.

I. *Moral and Political Philosophy.*—1. The different sources, occasions or determining causes of human action and their mutual relations;

pleasure, pain, desire, aversion and their varieties; will, freedom of will, practical reason; conscience, moral sentiments, moral perception or judgment, moral reasoning; theories of the origin of the moral faculty. 2. The Good or ultimate end of rational action; happiness, right and wrong, moral obligations, moral excellence; rules and sanctions. 3. Exposition and classification of particular duties and virtues. 4. Relation of Ethics to Psychology, Law, Politics, Theology. 5. The general principles of Jurisprudence, civil and penal; rights to property and services, and modes of acquiring them; contracts; rights and obligations attached to different private conditions; theory of punishment. 6. The general principles of Politics; the different functions of government and the modes of their distribution; mutual rights and obligations of governors and governed; general limits of governmental interference. 7. The History of ethical and political opinions.—Books recommended: Plato (*Protag.*, *Gorg.*, *Phileb.*, *Repub.*); Aristotle (*Ethics*); Cicero (*De Fin.*); Hobbes (*Leviath.* cc. 6-11, 13-15); Clarke (*Nat. Religion*, props. 1-4); Shaftesbury (*Inquiry*); Butler (Sermons, 1-3, 5, 8, 11); Smith (*Mor. Sentiments*); Hume (*Prin. of Morals*); Kant (*Metaph. of Ethics*); Paley (*Mor. Phil.*, b. 6); Bentham (*Prin. of Mor.* and *Legislation*, except c. 18, and *Prin. of Civil Code*); Whewell (*System. Morality* and *Hist. of Mor. Phil.*); Mill (*Utilit.* and *Rep. Gov.*); J. Grote (*Exam. of Utilit.*).

II. *Mental Philosophy.*—1. Analysis and classification of mental powers and mental phenomena, and determination of their mutual relations; consciousness, sensation, emotion, volition, perception, memory, imagination, conception, judgment, reasoning. 2. Laws of mental development and association of mental phenomena. 3. Subject, object and their relation in cognition; the origin and extent of knowledge; the criteria of truth and certainty. 4. The Categories or fundamental forms of the object of knowledge, their origin and mutual relations; space, time, substance, quantity, quality, relation, cause and effect. 5. The principal modes of Being and their relations; mind, matter and their different modes or qualities. 6. Physiological concomitants of mental phenomena; organs of sense and nervous system. 7. The History of Metaphysical opinions.—Books recommended: Descartes (*Meth.* and *Meditations*); Locke (*Essay*); Berkeley (*Three Dialogues*); Hume (*Hum. Nature*, bk. 1); Reid (*Intel. Powers*); Kant (*Kritik der reinen Vernunft*); Hamilton (*Metaphysics*); Ferrier (*Institutes*); Bain (*Handbook of Ment. Science*); J. Grote (*Exploratio Philosophica*); Spencer (*Psychology*); Calderwood (*Phil. of the Infinite*).

III. *Logic.*—1. Province of Logic, formal and material. 2. Functions of Language; names and their kinds; definition, division and classification; predicables and categories; scientific nomenclature and terminology; abstraction, conception and generalisation. 3. Propositions and their import; opposition and conversion of propositions. 4. Analysis and laws of Syllogism. 5. The fundamental laws of Thought and their application to logical processes. 6. The nature of the Inductive process; ground of induction; connection between induction and deduction; analogy. 7. Uniformities of nature and their combinations; their analysis and the methods of discovering and proving them; observation and experiment; scientific explanation; the nature and uses of hypothesis. 8. Doctrine of Chance. 9. Error, its nature and causes and the safeguards against it; classification of logical fallacies. 10. Relation of Logic to Psychology, Metaphysics, Grammar; methods of different sciences.—Books recommended: Aldrich (Mansel's ed.); Kant (*Logic*); Whately; Hamilton; Mansel (*Prolegomena*); De Morgan; Boole; Bacon (*Nov. Org.*); Whewell (*Nov. Org. Ren.*); Mill; Venn (*Logic of Chance*).

VIII.—JAMES HINTON.

We have to record with much regret the death of Mr. James Hinton, the author of *Man and his Dwelling Place, Life in Nature,* and other philosophical works, and also eminent as an aural surgeon.

Mr. Hinton was born at Reading on November 26th, 1822. His father, the Rev. J. Howard Hinton, was a Baptist minister of considerable influence and reputation. His mother is described by those who knew her as having been a woman of unusual mental gifts and elevated character; and there can be no doubt that her son owed very much to her teaching. At the age of 16 he was placed in business in the east end of London, where the scenes of misery and wickedness, for which his experience of country life had not prepared him, made a deep and lasting impression on his mind, and gave, no doubt, that strong practical, or rather philanthropic, bias which was conspicuous even in his most speculative writings. In the year 1843, at the age of 21, he entered upon the study of medicine, which made as powerful an impression upon him, intellectually, as his previous experiences of life had made morally. Before, however, he settled down in medical practice, he undertook two long voyages, one to China and another to Africa; on the latter of which he was placed in medical charge of a party of free negro labourers sailing from Sierra Leone to Jamaica. This appointment gave him an opportunity long-desired of studying man in a savage state, and for this purpose he underwent the labour of learning one of the African languages; while in Jamaica he was able to study the modifications in the negro character, produced by contact with the white man.

On his return to England he engaged in practice as a surgeon. During the early years of practice he worked much with Mr. Toynbee, the well-known aurist, and thus laid the foundation for his own subsequent skill and eminence. But at the same time the interests of philosophical speculation were never lost sight of; and much of his subsequent life may, indeed, be described as a struggle between the opposing claims of philosophy and practice, which, though not able always to reconcile, he endeavoured to harmonise by giving place to each in turn. At this time he approached philosophy chiefly by the path of physiology, and made numerous observations on organic forms and the influence of physical laws on life, which gave a special direction to his metaphysical speculations.

In 1858 the struggle between medicine and philosophy became too severe to be borne, and he relinquished practice in order to obtain leisure for thinking and writing. Shortly afterwards he published *Man and his Dwelling Place*, the work which contains in the most explicit and detailed form his theory of the Universe. Being at the same time chiefly dependent upon writing for a livelihood, he published some more popular articles on allied topics in the *Cornhill Magazine* and other periodicals, which afterwards formed the basis of his works entitled *Life in Nature*, and *Thoughts on Health*. About this time, also, he wrote *The Mystery of Pain*, the most widely read and popular of his writings; but it was not published till long after.

In 1862 the claims of medicine again got the upper hand, and he went into practice for the second time, confining himself now to the special department of diseases of the ear, which had long engaged his attention. He was shortly afterwards appointed aural surgeon to Guy's Hospital; and later on the sudden death of his friend and teacher, Mr. Toynbee, to whose house and practice he succeeded, placed him in the first rank among English surgeons practising his special branch; while his reputation rapidly spread to the continent of Europe and to America. Mr. Hinton worked very hard at his profession, and was rewarded with a large and lucrative practice; while at the same time he loyally acquitted himself of his duty to medical science by publishing, in a very complete and beautiful form, the results of his large experience. But it would be only bare justice to say that he looked upon practice chiefly as a means to an end—as the means of obtaining that freedom for philosophical pursuits which so many thinkers have longed for and so few have enjoyed.

During the early part of his second professional life he resolutely turned away from philosophy, and even relinquished, though with great difficulty, the habit he had formed of writing down his thoughts as they occurred to him and afterwards transcribing them. About five years before his death, however, encouraged by the advice of the eminent surgeon, Mr. Bowman, he recommenced the habit of writing, and the result is a large quantity of manuscript and printed matter, chiefly treating of Ethics, Sociology, and Art, but little of which, it is feared, exists in a form ready for publication.

In 1874 he again decided on retirement from practice, and resolved on embracing the long looked-for opportunity of devoting himself entirely to philosophical research and exposition. He appeared at that time to be in the fullest vigour of mind and body, and threw himself with much

energy into the study of several subjects which professional pursuits had left him no time to do justice to before; while he soon began to take a more prominent position in the literary and philosophical circles of London. His health had nevertheless suffered in some degree from the attempt to combine speculation and practical activity, and in the autumn of 1875 he went out to St. Michael's in the Azores (where he possessed some property), intending to spend the winter there with his family. There he was attacked with inflammation of the brain, and died on December 16th, at Ponta Delgada, in his 54th year.

While disclaiming the attempt to give a precise account of Mr. Hinton's philosophy, and still more the pretension to assign him his place among those whose views have been in any respect similar, we wish to say a few words on his theories as they were related to his personal character and education.

It is evident from his life that the most influential part of his education—in fact, almost the only education beyond ordinary school training which he received—was that which prepared him for the medical profession. Among the medical sciences he fastened with special eagerness upon physiology, and accepted without hesitation what may be regarded as the great lesson which physiology teaches or claims to teach—the unity of Nature. The indissoluble bond between mental and organic life, the entire subordination of organic life to physical laws were regarded by him as inevitable conclusions. To the difficulties of this position he was not in any way blind. He knew very well and felt deeply that it was subordinating what appears higher to what appears lower. He more than knew, he continually dwelt upon and enforced the truth, that the higher aspects of life and the immaterial objects of human thought call forth in us emotions of reverence and love which are not called forth by the spectacle of physical uniformity. He was never weary of dwelling upon the contrast between the dead material universe (*death* being defined as *inertness*) and the life which our spiritual nature demands as the ground of phenomena. Human instincts, he said, were quite right in refusing to admit that the cause of life could be anything not living. The only escape from the difficulty, in his view, was to attribute to the apparently material cause of life the same qualities as life itself; to regard its want of life as only apparent, in short to regard the material universe as the spiritual universe, wrongly perceived as material by some illusion or error of our faculties.

A great part of Mr. Hinton's works is occupied with the discussion of the existence and nature of this illusion, which

makes us perceive the universe as material or "dead," when it is really "living." One of his favourite arguments was derived from the history of science, which showed, he thought, that we must inevitably take false views of things before the true views can be established. The impressions of sense have to be corrected into scientific hypotheses, and so the conclusions of science, he urged, would need to be corrected by something higher. His favourite illustration, often repeated in his works, was from the history of astronomy. Our first impression is necessarily that the earth is stationary and the heavens revolve around us. Nature, he used to say, treats us like children, whom we take in our arms and twirl round, trying to make them believe that the room is going round them. But later on we correct our first impressions and learn that the heavens are stationary and that it is we ourselves that are revolving. So the universe appears dead to us; but why should this not be because of some defect, *i.e.*, *deadness*, in ourselves? It is in this conception of a peculiar defect or deadness in man that we chiefly trace the influence of the theology which imbued his mind in early years. The "fallen state" of man or his moral deadness, as spoken of in the New Testament, probably suggested the idea of a fundamental defect in man's faculties. Not that he regarded the New Testament as professing to give any theory of man's perceptions or containing any cosmical philosophy. That quality, however, of human nature which in its moral aspect is there described as deadness, might in its intellectual aspect be the cause of our bluntness or imperfect perception in relation to the world.*

A thinker so much possessed with a desire for human improvement could not fail to consider the question how far this defect in man could be removed or compensated. The solution found appears to depend on an appeal from man's reason to his moral sense, *i.e.*, to "the heart and conscience." To the reason the material universe must appear *dead* or inert, since its action is invariable, but to the spiritual perception it is full of spiritual meaning: invariableness is not a proof of inaction (*i.e.*, inertness or death) to the moral sense, since right

* In the first edition of *Man and his Dwelling Place*, the moral condition, or "fallen state" of man, was contrasted in its imperfection with the unbroken progress of his intellectual nature; but in the preface to the third edition he repudiated this notion, regarding it as established that "man's moral and intellectual nature are alike, and his moral and intellectual progress strictly parallel; the contrast between them being one of *period*, not of nature or of end." It seems questionable whether this admission might not have ultimately introduced still further modifications into his system, had the author lived to see another edition of his work.

action is invariable, as being absolutely conformed to law. "*Why should not the secret of Nature's invariableness be not passiveness, but rightness?*" To this question, implied more often than expressed in many of his works, Mr. Hinton might contend that reason could give no answer, except by the counter-question (to which he himself was equally unprepared with any answer on intellectual grounds): *Why should rightness be the secret of Nature's invariableness?* It is difficult to conceive of argumentative reasons for or against "predicating holiness of Nature, as of man." This the author confesses when he says: "the belief that the invariableness of Nature bespeaks holiness as its cause doubtless involves an appeal to man's moral sense." But, he urges, "the appeal to an inevitable conscious association of right and wrong with true action surely has not less weight than an appeal to a perception of intellectual relations." We are not here concerned to defend or criticise this position, but think it worth while to point out that this definite preference of the deliverances of the moral sense over those of the intellect was closely connected in Mr. Hinton's mind with his strong conviction of the intense importance of moral problems. It was this conviction and not a merely speculative interest which induced him to apply himself with so much energy to solving the riddle of the Universe, and the solution which he required was one that should admit of practical application for the relief of man's estate.

Mr. Hinton was a firm believer in human progress, but looked for the amelioration of society rather to a more completely altruistic rule and practice of conduct (expressed in a little tract called *Others' Needs*), than to intellectual cultivation; to a gradual change in human nature rather than to the machinery of philanthropy.

The chief characteristic of Mr. Hinton's mind was, perhaps, his unhesitating intellectual courage, which led him to accept ungrudgingly all the consequences of any logical conclusion, though he might feel deeply the moral sacrifice involved. With this was joined a singular ardour in the pursuit of truth, and an intensity which is more often devoted by men of his temperament to moral than to intellectual ends. Notwithstanding, his candour and openness of mind were complete; and probably few persons were ready to examine any opinion presented to them with so entire an absence of prejudice. These qualities, combined with freedom from the intellectual prepossessions of any particular school of thought or place of education, gave him in a very high degree the stamp of originality. His conversation never left any doubt that, whether his views were or

were not unknown before, they were, at least for him, the fruit of arduous solitary thought, while his mode of statement and illustrations often had a freshness and piquancy peculiarly his own.

His death at a critical period of life, when he had just attained his long-desired speculative freedom, was a painful shock to his friends; nor could any country, least of all our own, well afford to lose so earnest, unencumbered and well-equipped a pioneer in the search for truth.

J. F. PAYNE.

IX.—CRITICAL NOTICES.

Neue Briefe über die Schopenhauer'sche Philosophie, von JULIUS FRAUENSTÄDT. Leipzig, 1876.

THIS work is chiefly apologetical and critical, as the *Letters* of 1854 were chiefly explanatory. At the same time we have here, as the author informs us, the results of a much more complete acquaintance with the philosophy of Schopenhauer than was possible in 1854, at which date the third edition of *Die Welt als Wille und Vorstellung*, and the second edition of the *Parerga und Paralipomena* had not appeared, and the author had not ended his correspondence with Schopenhauer, or come into possession of his voluminous manuscripts. The present letters are accordingly explanatory as well as apologetical and critical; but they do not add much to what we already had in the author's *Introduction* to Schopenhauer's works (1873). Many passages of the *Introduction* appear *verbatim* here. As an expositor of Schopenhauer's views, Frauenstädt is perhaps as successful as could have been expected in the circumstances. He is not quite so easy to follow as Schopenhauer himself. To explain *Die Welt als Wille &c.* in German is about as futile as the attempt would be to put Hume's philosophy into clearer English, and arrange its parts more lucidly than Hume has himself done. A French or English account of Schopenhauer for French or English readers is another thing. Ribot in his excellent little work *La Philosophie de Schopenhauer* expresses this when he says (preface): "A défaut d' une traduction qui seule en donnerait une idée juste, on a essayé du moins de lui conserver son originalité en le laissant parler presque toujours lui-même." There are few more extraordinary facts in the history of literature than that in Germany so brilliant a writer as Schopenhauer could not speak for himself, and that Frauenstädt became the means of introducing him to his countrymen so late as the year 1854. Schopenhauer was too imaginative and many-sided to be merely a metaphysician. His so-called metaphysical system was little more than the literary form

which he gave to many true and original positions in science, ethics and æsthetics. Can one of the reasons of his tardy recognition have been that the German public are slow in appreciating any one who is neither a pronounced metaphysician nor a professed specialist? At any rate v. Hartmann, who has brought out Schopenhauer's metaphysical system in hard lines and possesses none of his master's suggestiveness and literary power, has obtained immediate and wide-spread recognition.

The principal object of the work before us, so far as it is not a reply to critics, is to explain away the survivals of Kantian dualism in Schopenhauer by exhibiting their inconsistency with his scientific monism. Here we think Frauenstädt seizes correctly Schopenhauer's position. It is true, as he says in his preface, that the corrections (in a monistic sense) which Schopenhauer's philosophy requires are almost always to be found actually made by Schopenhauer himself in some part of his works; at the same time, Frauenstädt has the lexicographer's merit of having collected the passages. The compilation of the *Schopenhauer-lexicon* has evidently done a good deal for his appreciation of Schopenhauer's true position. He sees with considerable clearness that Schopenhauer is not a metaphysician, but a man of science. Any unprejudiced person, he remarks (*Letter* 2), reading Schopenhauer feels that he is in contact not with cobwebs of the brain, but with concrete facts. Hence the powerful impression which Schopenhauer makes, notwithstanding his occasional lapses into Scholasticism. Like Locke he starts from sense, and takes great pains to guard against the abuse of abstract terms which lend themselves to several different meanings; *e.g.* he distinguishes four different meanings of "Sufficient Reason," in his work *Ueber die vierfache Wurzel des Satzes vom Zureichenden Grunde;* and three kinds of "Freedom" in *Die beiden Grundprobleme der Ethik.* But Philosophy is concerned only with *what* the world is, not with its *whence*, *whither*, and *wherefore.* These latter questions move in the region of *Erscheinung*, and of the law of causality. Have we not here dualism, Frauenstädt asks—*Erscheinung* on the one side, and *Ding an Sich* on the other? And is not the use of the law of causality thus excluded from philosophy? In answer to this question, which affects so seriously Schopenhauer's position as a man of science, Frauenstädt shows that *Erscheinung* and *Ding an Sich* are not mutually exclusive in Schopenhauer's, as in Kant's, view, but that the latter is immanent in the former. It is by looking at the *Erscheinung* that we grasp the *Ding an Sich.* The forms of *Erscheinung*—Space, Time, and Causality—are not alien to the *Ding an Sich.* The different grades of *Erscheinung* are not purely ideal, but represent real differences in the *Ding an Sich*, or Will which is objectified. All that is *à posteriori* in a thing which we perceive with our senses belongs to it as *Ding an Sich*—as Will; whereas whatever can be determined *à priori* is pure *Erscheinung*, and belongs entirely to the region of *Vorstellung.* Thus in a letter to himself, quoted by Frauenstädt (*Letter* 20), Schopenhauer says that we cannot conclude either from the *à priori*

or from the *à posteriori* qualities of an object that it really possesses such qualities. The objective rose cannot be said to be either red or yellow. But the fact that one rose is red and another yellow points to an objective difference. In the first edition of *Die Welt als Wille &c.* Schopenhauer was still too much under the influence of Kant to adopt this monistic view, maintaining that the differences of things are purely ideal. But in the later editions and in the *Parerga* Frauenstädt shows that he no longer adhered to the dualism of *Wille* and *Vorstellung*. One of the most successful parts, we think, of Frauenstädt's present series is where he shows (*Letters* 7 and 8) from Schopenhauer's own principles and even statements that *Vorstellung* must be generalised to the same extent as *Wille*, not confined to cerebral function. Not only Will, but also Causality is essentially the same throughout nature. A mechanical impact, the sensibility of plants, and a motive in consciousness do not differ essentially. This is the fundamental thought of the first part of the treatise *Die beiden Grundprobleme der Ethik* (viz. *Freiheit des Willens*). According to their constitution (*Wille*) objects are acted upon differently. But the force acting is identical, whether it appear as an impact, an irritation, or a motive in consciousness. In accordance with this doctrine of the identity of Causation throughout nature, Frauenstädt generalises *Vorstellung*, using it to denote the fact that an object is acted upon in a way peculiar to itself by external forces. Plants do not *see* the sun as we do, but in their own peculiar way they divine its presence—are affected by it. This is their *Vorstellung*. Our knowledge of natural objects, organic as well as inorganic, is derived from our experience of their *reactions;* this is the important doctrine implied in Schopenhauer's later view of the relation between *Wille* and *Vorstellung*, and his theory of the identity of Causation throughout nature. How do objects *behave?* How do they act upon one another and upon us? Our experience of their behaviour or reactions is not a false show; for they behave according to their several real natures; and our different perceptions stand for real differences in the ways in which objects behave. Thus Frauenstädt (*Letter* 20) shows that Schopenhauer held views identical with those of Helmholtz on the subject of sense-perception—viz. that the qualities perceived by us are not *copies* of objective qualities existing independently, but only the results of the action of external forces upon our specially constituted organs of sense—therefore mere *signs*. To speak of a colour existing externally is to employ a relative conception absolutely. Externally there exist certain forces; it is only when these act upon a retina that colour comes into existence. But the different colours of which we are conscious point to real external differences of which we know nothing more than that they are not differences of colour. It is evident from Schopenhauer's position on this question that he is no dualist but occupies the monistic ground of modern scientific psychology. As he says (*Welt als Wille &c.* i. p. 40): "Our point of departure is neither Object nor Subject, but *Vorstellung*, as being the primary fact of consciousness which

exhibits as its most essential law that of bipartition into Object and Subject." Schopenhauer here indicates the point from which scientific psychology must necessarily start—the concrete mental impression, which, when vivid and associated with other vivid impressions, is what we call the *external world*, and when faint, and connected with other faint impressions, what we call *ourselves*. Schopenhauer's position is exactly that of Hume, and that from which Wundt starts in his eighteenth lecture *Ueber die Menschen- u. Thier-Seele*, in which he traces the manner in which the ego and the external world have been differentiated out of impressions which originally belonged to neither.

One of the most successful of the present *Letters* is the thirty-first, where Schopenhauer's teleology is discussed. Schopenhauer traces purpose in nature; but it is not intelligent purpose. Is this not a contradiction in terms? asks Professor Friedrich Harms. In reply, Frauenstädt refers him to Schopenhauer's explanation of the organising processes of nature in general, by means of the instinct of animals. In Instinct nature gives us an expository commentary on her unintelligent realisation of purpose in her various productions. Animals make elaborate preparations for coming events of which they have no knowledge. Schopenhauer's position then is that nature realises purpose, but without intelligence. Frauenstädt admits that the source of the purposive organising process lies deeper than the region of intelligence—viz. in the ultimate nature of the matter organised, but he does not admit that this process can begin without intelligence. He then refers to the correction which he has already deduced from Schopenhauer's own principles, by which Perception, instead of being confined to the grade of animal life, is traced in all the grades of nature in inseparable connection with Will. Wherever Will is moved by an external force, this force must be *perceived* in a certain way. An external agency which is not perceived cannot move Will. Perception, or as we may otherwise express it, discrimination of difference is implied whenever the condition of a body, inorganic or organic, is modified by an external agency. Will and Perception—the original force and the interferences with which it meets—may be logically separated; but never exist actually apart. In his work *Ueber den Willen in der Natur*, Schopenhauer advances a view which does not differ materially from the theory of Natural Selection, and which shows what he means by purpose in nature. The organisation of an animal, he says, stands to its environment in the same relation in which a voluntary act stands to its motive. The shape of the ant-eater is a manifestation which has the ants for its motive (p. 40). Frauenstädt adds—"The tendency towards life may in itself be blind and unintelligent; but the external circumstances and relations in correspondence with which this tendency manifests itself in the organising processes, and to which it adapts itself, must nevertheless in a manner be perceived by it." We have evidently here the two factors—Heredity and Adaptation which determine every organic form, or as Haeckel, (*Generelle Morphologie*, i. p. 153) in generalising

them to include the forces at work in the formation of crystals, names them, the internal and the external formative forces; the former being the sum of the moving forces manifested in all the molecules which compose the individual crystal or cell, the latter the sum of the forces external to the individual which interfere with its internal forces. It will thus be seen that Frauenstädt's generalisation of *Vorstellung* has much scientific significance, although it may perhaps be thought to take undue liberty with the word. But his identification (*Letter* 23) of *Kraft* and *Ursache*, which amounts to the same thing as the generalisation of *Vorstellung*, has not this objection. Schopenhauer (*Welt als Wille &c.* ii. p. 51) expresses himself as if *Kraft* and *Ursache* were essentially distinct, the former "giving the latter its causality." This amounts to saying that the law of gravitation exists independently of all gravitating bodies, and the vital force independently of actual organisms. Frauenstädt shows principally by referring to other statements of Schopenhauer himself that there can be no such separation in reality of the two factors, although it is convenient logically to distinguish between the inner moment (*Kraft*, *Wille*, Darwin's Heredity) and the outer moment (*Ursache*, *Vorstellung* as generalised by Frauenstädt, Darwin's Adaptation).

The Will or organising force is not something absolutely distinct from the matter organised and the external forces of the environment. It is not extrinsic and supernatural. It is a force in exactly the same sense as the forces indicated by the terms Matter and Environment. There cannot exist an organism which has not been affected by its environment; this is the truth in Frauenstädt's position that *Vorstellung* is inseparably connected with *Wille* in the lowest as well as in the highest grades of nature. Frauenstädt's treatment of Schopenhauer's *Wille* and *Vorstellung* thus conducts him to scientific results, because he follows his master's concrete method. But v. Hartmann treats these words as representing abstract notions to be anyhow manipulated, and thus arrives at a symmetrical co-ordination of *Wille* and *die absolut unbewusste Vorstellung*, which enables him to explain Instinct as *clairvoyance!* (*Phil. des Unbewussten*, p. 90.) As Frauenstädt remarks (*Letter* 8), Schopenhauer's system owing to the subordination of *Vorstellung* to *Wille* is much more monistic than v. Hartmann's, which owing to its co-ordination of the two relapses into dualism.

Frauenstädt (*Letter* 17) finds Schopenhauer's adherence to the Kantian doctrine of the ideality of Space, Time and Causality inconsistent with his scientific monism. He quotes a passage (*Welt als W. &c.* i., p. 152), in which Schopenhauer maintains that the plurality of things in space and time does not affect Will, which is one and indivisible. There is not a greater part of it in a man than in a stone, for the relation of whole and part belongs exclusively to Space, and has no meaning when this form of intuition is absent. To this doctrine Frauenstädt replies from Schopenhauer's own principles that Space, Time and Causality must be regarded as affecting Will or the *Ding an Sich*, because the differences in our

sensations point to real external differences, of which they are signs although not copies. Now if the differences are real, then *eo ipso* Time, Space and Causality are also real—*i.e.* attributes of the *Ding an Sich;* for where there are differences there is plurality—therefore sequence and co-existence (Time and Space)—and also Causality, since the real differences produce corresponding differences in our sensations (*Letter* 21). Nor is the doctrine of the ideality of Space, Time and Causality reconcilable with Schopenhauer's *Ideen* or various natural forces, which he regards as the immediate objectifications of Will. According to Schopenhauer's view, which is identical with the nebular hypothesis of Kant and Laplace, nature ascends from lower to higher stages (*Ideen*) without any break in continuity—*Natura non facit saltus.* The later and higher manifestations are conditioned by the earlier and lower, which they use up or develop. Hence Space, Time, Plurality and Causality cannot be merely subjective forms, but must have objective reality, since they are implied in the plurality of the ideas or natural forces which are the real manifestations of Will. Thus Frauenstädt removes the last trace of Kantian dualism and idealism from the scientific system of Schopenhauer, by insisting on the far-reaching importance of his doctrine that *Erscheinung* or *Vorstellung* is real, though not primarily, yet secondarily or in a derivative way. There is a point, however, which Frauenstädt has not noticed in the letters before us—viz. Schopenhauer's method in geometry and arithmetic, which was suggested to him by Kant, and does not look like an abandonment of the Kantian doctrine of the subjectivity of Space and Time. In the *Vierfache Wurzel* (ch. 6, on the third *principium*, viz. that *rationis sufficientis essendi*), he says that insight into the nexus or mutual determinations of the parts of Space cannot be gained by means of abstract reasoning (as in Euclid's demonstrations), but only by *looking at figures.* It is this alone which gives conviction, and to this at last (in the axioms, &c.) we refer our logical proofs. But Euclid's method, he says (*Welt als Wille &c.*, i. p. 85), was necessarily dominant until Kant distinguished pure *à priori* intuition from empirical intuition. When this distinction had been made—and he enlarges on its importance, and speaks of our intuitions of Space and Time as entirely independent of all sensuous impressions,—then it became evident that Euclid's logical method is a useless round-about way—a crutch for sound legs. When we look at a triangle with one side produced, and *see* that the exterior angle is greater than either of the opposite interior angles, we form a synthetic judgment *à priori.* Here certainly Schopenhauer cannot be said to have given up the Kantian position.

In his 22nd *Letter* Frauenstädt touches the weak point in Schopenhauer's system, where he becomes a metaphysician—viz., his doctrine of the annihilation of Will. In holding this doctrine, Schopenhauer is in a transcendental region—he puts himself outside of the world of experience. Will or Force is no longer regarded absolutely, but in relation to something else—viz. to its annihilation. He is thus a metaphysician *à parte post,* which is no better than

being one *à parte ante*. This conception of the annihilation of Will has no logical—of course it has no real—connection with his scientific system. Its origin is apparently emotional. It is a refuge which his pessimism has invented. Frauenstädt traces his pessimism to his doctrine of egoism as the necessary result of the *principium individuationis*. But how the Universal Will comes to be so blinded in the individual as to hold for unreal its manifestations in all other individuals, Frauenstädt cannot understand, and Schopenhauer does not satisfactorily explain (*Letter* 43). Frauenstädt's attitude to Schopenhauer's pessimism shows, we think, much good sense. He cannot understand it. It has no connection with Schopenhauer's system, and indeed, as Frauenstädt points out (*Letter* 45), is at variance with his Ethic which founds upon Pity, and recognises the duty of making others happier. The contrast between v. Hartmann and Frauenstädt comes out very clearly in their respective attributes towards Schopenhauer's pessimism. V. Hartmann develops it extravagantly because it is an extravagant view to begin with; but Frauenstädt leaves it alone because it has no scientific significance. V. Hartmann treats all Schopenhauer's philosophical ideas simply as abstractions, and develops out of them, without regard to the facts of experience, a sham science to fit into the forms of his elaborate metaphysical system. Frauenstädt, on the other hand, rather desystematises Schopenhauer.

There is no point on which Schopenhauer is so absolutely at one with Kant, as on that of the Freedom of the Will, as treated of in the first part of *Die beiden Grundprobleme*. Like Kant he places the *homo phaenomenon* in the region of causality, and regards the *homo noumenon* as the source of freedom. Actions follow their motives necessarily; but the agent has a sense of responsibility and freedom, because he knows that the contrary of a bad action would have happened had he been a different man. Freedom is not to be looked for in *operari* but in *esse* (p. 93, &c.). In his 37th—40th *Letters* Frauenstädt has some extremely good criticisms to offer on this theory, and arrives, we think, at a sound conclusion. *Necessary* means *caused*, on Schopenhauer's own principles. But the intelligible character of a man is caused by the Universal Will. Therefore the Universal Will, not the individual character, is responsible. Freedom, which means independence of causation, is to be found no more in a man's *esse* than in his *operari*. Schopenhauer is not entitled to separate man from nature in this way. It is a piece of dualism inconsistent with his monism. Nor after all is it a less contradictory thought that the Universal Will itself might have been other than it is. The conception of Freedom in *esse* is in short unmeaning. Being responsible has nothing to do with the possibility of having been born with a different character. There is no such possibility. Wherever a man is socially disliked he is in a sense responsible; and we often dislike people for disagreeable peculiarities of body or mind which are congenital. Responsible means Punishable. The only effective punishment of congenital vice is death, and this has sometimes to be resorted to. Tigers and

other dangerous wild beasts are responsible in this wide sense. They are not responsible because they might have been different, but because they may be killed. But where punishment acts as a motive—*i.e.* becomes the necessary cause of actions tending to its avoidance, we are responsible in the strict sense, *i.e.* punishable by the Law for actions the opposites of which are possible. It is only because Law can punish us that we are strictly speaking responsible. If no overmastering external agency forces us to disobey the Law, we are free when we disobey it. Freedom in *esse* is nonsense, because motives cannot alter our *esse* as they can our *operari*. Kant and Schopenhauer have in short placed Freedom in the very stronghold of Necessity. Frauenstädt has done good service in directing attention to this. He is singularly free from the trammels of Schopenhauer's system, for there can be no doubt that the place which his system assigns to Will, was the real cause of Schopenhauer's doctrine of Freedom in *esse*, or Responsibility out of all relation.

In the second part of *Die beiden Grundprobleme*, viz. *die Grundlage der Moral*, Schopenhauer breaks with Kant because he assumes an *imperative* or *ought* out of all relation to an external Law, holding out motives to obedience. He puts Kant in this dilemma. *Duty* and *ought* are essentially relative conceptions, and have no meaning except in connection with punishment or reward. But a relative *ought* cannot be an ethical principle, because all that is done from fear of punishment or hope of reward is done from egoistic motives, and can have no moral worth. It is strange that he should have failed to apply a similar criticism to Kant's doctrine of Freedom.

In his 32nd and 33rd Letters Frauenstädt speaks of Schopenhauer's Æsthetic, and here, we think, he fails in appreciation. He remarks, sensibly perhaps, that the freedom from Will which Schopenhauer finds in the æsthetic contemplation of the Ideas can be nothing more than a *relative* freedom, because æsthetic contemplation is attended by pleasure, and where there is pleasure there is Will. The Will from which æsthetic contemplation frees us is egoistic will; but it raises us to the level of a higher and non-egoistic pleasure and manifestation of Will. A special form of Will corresponds to the æsthetic attitude of the Intellect. Schopenhauer was wrong when he maintained that in æsthetic contemplation we are entirely free from Will. He was also wrong when he maintained that the objects of æsthetic contemplation—the Ideas—are out of relation to Space, Time and Causality. When we derive pleasure from an object of art, Frauenstädt maintains we must necessarily localise it, like all other objects, in Space and Time, and cannot neglect its causal connections. This is of course true, but to say it displays want of literary tact. Surely Schopenhauer's theory of fine-art, being like all great theories of fine-art, itself in a manner a work of fine-art, deserves to be approached in a literary spirit. Schopenhauer's æsthetic contemplation is a *momentary* ecstacy which may be *described* as transcending Time,

Space and Causality. A purely literary description of this sort is surely justified by the acknowledged difference between the feeling which bursts in upon us with the first sight of a beautiful landscape, and the train of thoughts which passes through our minds when we try to reconstruct its geological history. Again, Frauenstädt takes exception to Schopenhauer's Æsthetic because it supposes eternal unchangeable Ideas. This theory of art, he says, does not harmonise either with Schopenhauer's general doctrine, which is essentially a doctrine of evolution, or with the Darwinian theory of the Origin of Species. But it is surely unnecessary to inquire whether a theory of Art harmonises with the Darwinian or any other theory of the Origin of Species.

We have said enough to indicate what seems to us to be the distinctive merit of Frauenstädt's new work—that it exhibits Schopenhauer in his essential character of a man who, from considerable scientific attainments, contributed much that is sound and original to the literature of the scientific imagination. It is fortunate, we think, that attention has been directed to Schopenhauer's best points by such an able and sensible work as the present at a time when, we fear, many are turning to the unsuggestive pages of v. Hartmann. J. A. Stewart.

Die Sprachwissenschaft nach ihrem Zusammenhange mit Logik, menschlicher Geistesbildung und Philosophie, von Conrad Hermann, Prof. Leipzig, Teubner, 1875.

Professor Hermann has taken new ground in this important work, but it would be premature to attempt to assign its precise value. It is obvious even to the casual reader that an extension of the philosophical sphere is here suggested; but the new territory has not been fully occupied. A careful consideration of the results of the author's labours will reveal that he has rather sketched in outline the nature of "a new departure" in philosophy than made good the progress of philosophy in the special direction indicated. Therefore we say we are not in a position to estimate with anything like finality the exact worth of this contribution to philosophical thought. All we can do here is to show what the author attempts, and what he hopes may yet be accomplished. That will be found to be of very great moment, both for philosophy and psychology, whether or not the claim be made out that the science of logic has been placed on a new basis. Stated broadly, his position is that philosophy and philology are closely bound together through thought, which is the middle term or connecting nerve of their union, so that the two sciences represent complementary sides in the development of the thinking principle.

In elucidating this position the author first deals with the science of language under its two divisions of Philology and Glossology—the former of which is occupied with the more subjective side or the

spiritual contents of language, the λόγος, or the thought which is expressed in outward forms or symbols; while the latter refers to the objective sensuous forms of speech as the work of the γλῶσσα. Philology, then, includes the various expressions of spiritual or intellectual thought in the languages and literatures of nations, as the manifestations of the spirit or genius of language rooted in the intelligence of man. Glossology, again, is confined to the examination of the sensuous or linguistic elements themselves; and it is only in the higher unity of the two that language can be rightly regarded as the mode of giving objective form to the inner conceptions of the mind. Philology seeks to ascertain the fundamental forms and most general expressions of thought which recur in the grammars of all languages, and investigates the laws of the development of language as illustrated by literatures, and thus on its objective side becomes a means of throwing light on historical science. But the historical treatment of language in comparative philology, which has so much become the prevalent mode of dealing with it that it is viewed as a branch of natural science, is only one half of the science. Besides tracing the way in which language has come to be what it now is, as a historical or natural product, it is necessary to inquire into the actual contents or the *what* of Language, so far as it is the revelation or outward expression of the inner principles of the human intelligence. It has been one of the most misleading errors of modern times to deal with thought and language as if they were mutually independent of and altogether distinct and separate from each other. Modern philosophy has strayed into all sorts of mistakes by adopting this point of view, and treating language in consequence as a kind of arbitrary invention of the understanding, whereas it is organically connected with the thought of which it is the expression—not in a relation of mechanical cause and effect, but in the higher relation of being the artistic product of the free exercise of man's intellectual activity; as in short an organic product of the Reason. The entire system of languages has grown out of the free activity of living speech which was based upon the nature of thought. Thought *per se*, or what is called pure thought, is therefore regarded by Hermann as a fiction, the most abstract logical thinking having been conditioned by and due to the development of language; for language is rather the *prius* of thought than the reverse. Not that Hermann is bound to deny the possibility of rudimentary conceptions apart from language, which, as Lotze shows in his *Logik*, must exist in the case of the deaf and dumb; but the higher, more abstract, and more complex exercises of thought are impossible apart from language.

Having traced generally the organic connections of Thought and Language, and briefly exhibited the past relations of linguistic science to philosophy, Hermann goes on next to deal with the theory of thought or the position of philosophy as the result of the development of the history of philosophy. The true scientific standpoint for the knowledge of all the interests of human life is the historical; but care must be taken that the historical view—

which regards all things in the relation of cause and effect, like natural science—does not obscure or conceal what may be called the dynamical view. All language is an attempt to give expression to the absolute or complete thought of the pure idea, which is the assumed thought that represents the actual reality, the real essence of what objectively is. It is not only the forms of language which vary with different peoples in different circumstances — the contents of the thought in each case have their own distinct characteristics. What thought aims at in its efforts to comprehend being is to transfer the contents of real being, or what is in the objectivity of external things, into its own forms, so that the two shall harmonise or coincide. Ideal thinking as Logic and the real thinking of Language are in one sense different; for the former is objective and the latter is always subjective, and the aim or end must be to determine how far the subjective thought expressed in Language corresponds with the absolute and objective thought of Logic. The external world is an existence in space; but the order or connection of our subjective ideas is conditioned by time, and the whole process of the activity of thought may be regarded as a transfer of the contents of things existing in space to the simpler form of connection in time; that is, succession. This mode of apprehension forms the foundation or principle for a new kind of scientific criticism of the phenomena of language. We endeavour (says Hermann) to lay the foundations of a new advance of the science of language from the standpoint of the principle of thought; and this direction or tendency is described as the ideal-logical, or conceptual-philosophical (*begrifflich-philosophische*), mode of viewing Language.

The Logic of Aristotle is the foundation of modern science. In the objective Logic of Hegel for the first time we have a distinct advance. The Hegelian Logic is not, like the Aristotelian, an exposition of the abstract forms and laws of thought, but an attempt to expound in systematic order the "material contents" or the necessary rhythm of thought in the development of its own fundamental ideas. Hegel failed to see, or refused to admit, the essential relations of thought and language, and his Logic is one-sided and purely ideal; but it marks a substantial advance in the great work of seeking to harmonise thought and being which is the end of all philosophy. Hegel regarded all history and all events as a development, or a becoming, according to fixed laws, and his philosophy seeks to exhibit the order of the connection of things according to a general but purely formal principle. Hermann accepts the formal principle, but finds it necessary to supplement it with a material principle. He applies to the explanation of history both the principle of final and of physical causes; and his view is teleological throughout. The natural science of the present day is one-sided because it rejects the teleological principle in explaining phenomena and is satisfied with secondary or physical causes. The teleological principle implies a definite idealism, and this ideal element is indispensable; but it is held in connection with a prin-

ciple of Realism, and the general designation of Hermann's point of view is "Ideal-Realism." Hermann's chapters in this work on the Logic and Dialectic of Hegel are luminous and valuable. His criticism of Hegelian defects seems to us to be as true as it is acute. But though the Hegelian dialectic rests on a principle that cannot be maintained, and by its one-sided use of the idea of development, or becoming, as determining our entire conception of the world is misleading, it offers points of contact for a more complete (realistic) exhibition of the whole doctrine of thought. Supplemented by a philosophical treatment of thought as represented by language which is its manifestation, and through which alone we shall attain to true views of the organism of ideas and logical forms of thought, philosophy accepts the Hegelian Logic and seeks to bring it into harmony with reality. Philology is found to be an intellectual or logical science, and the true principle of its treatment must be that of the logico-rational explanation of language. Only thus shall we escape the danger of merging philology in glossology, and thereby depriving philosophy of the benefits it is entitled to look for from both.

There is much in Hermann's work which must for the present be regarded as only assertion. The demonstration of his doctrine is yet to come; but in bringing into clear light the ideal and real sides of thought in Logic and Language, by showing their intimate organic union, and by connecting the history of philosophy with philosophy in its true nature, he has paved the way towards an advance in philosophical thought. Thought is the inmost nerve and centre of gravity for the scientific truth of philosophy; but thought must not be merely viewed ideally but in its empirical relations as represented by Language. Only therefore through the union of philosophy and philology is any substantial advance possible. Philosophy must appropriate the results of the science of Language, and will find there the elements and means required for a scientifically ordered treatment of the whole principle of thought. We hope Prof. Hermann will proceed with the work he has begun; and that we shall not have long to wait for a further and fuller exposition of the principles on which he founds his synthesis of philosophy and philology, or what is even more important—for the analysis of the philosophical nature of language as representing the organism of the free activity of thought. J. Scot Henderson.

X.—REPORTS.

I. Education of Laura Bridgman.

The last (43rd) Annual Report of the Perkins Institution for the Blind in Boston, Massachusetts, contains a somewhat circumstantial description by Dr. S. G. Howe of his mode of educating the celebrated blind deaf-mute Laura Bridgman. The case is so interesting from

the psychological point of view that the statement is here quoted nearly in full :—

"I found in a little village in the mountains a pretty and lively girl, about six years old, who was totally blind and deaf, and who had only a very indistinct sense of smell; so indistinct that, unlike other deaf-mutes, who are continually smelling at things, she did not smell even at her food. This sense afterwards developed itself a little, but was never much used or relied upon by her. She lost her senses by scarlet fever so early that she has no recollection of any exercise of them. Her father was a substantial farmer; and his wife a very intelligent woman. My proposal to try to give regular instruction to the child seemed to be a very wild one. But the mother, a woman of considerable natural ability, animated by warm love for her daughter, eagerly assented to my proposal, and in a few days little Laura was brought to my house in Boston, and placed under regular instruction by lessons improvised for the occasion.

"I shall not here anticipate what I intend to write about her further than to say that I required her by signs, which she soon came to understand, to devote several hours a day to learning to use her hands, and to acquiring command of her muscles and limbs. But my principal aim and hope was to enable her to recognise the twenty-six signs which represent the letters of the alphabet. She submitted to the process patiently, though without understanding its purpose.

"I will here give a rough sketch of the means which I contrived for her mental development. I first selected short monosyllables, so that the signs which she was to learn might be as simple as possible. I placed before her, on the table, a pen and a pin, and then, making her take notice of the fingers of one of my hands, I placed them in the three positions used as signs of the manual alphabet of deaf-mutes, for the letters *p e n*, and made her feel them, over and over again, many times, so that they might be associated together in her mind. I did the same with the pin, and repeated it scores of times. She at last perceived that the signs were complex, and that the middle sign of the one, that is the *e*, differed from the middle sign of the other, that is *i*. This was the first step gained. This process was repeated over and over, hundreds of times, until, finally, the association was established in her mind between the sign composed of three signs, and expressed by three positions of my fingers, and the article itself, so that when I held up the pen to her she would herself make the complex sign; and when I made the complex sign on my fingers she would triumphantly pick up the pen, and hold it up before me, as much as to say 'This is what you want.'

"Then the same process was gone over with the pin, until the association in her mind was intimate and complete between the two articles and the complex positions of the fingers. She had thus learned two arbitrary signs, or the names of the two different things. She seemed conscious of having understood and done what I wanted,

for she smiled, while I exclaimed, inwardly and triumphantly, '*εὕρηκα! εὕρηκα!*' I now felt that the first step had been taken successfully, and that this was the only really difficult one, because by continuing the same process by which she had become enabled to distinguish two articles, by two arbitrary signs, she would go on and learn to express in signs two thousand, and finally, the forty and odd thousand signs or words in the English language.

"Having learned that the sign for these two articles, *pin* and *pen*, was composed of three signs, she would perceive that in order to learn the names for other things she had got to learn other signs. I went on with monosyllables, as being the simplest, and she learned gradually one sign of a letter from another, until she knew all the arbitrary, tangible twenty-six letters of the alphabet, and how to arrange them to express various objects: knife, fork, spoon, thread, and the like. Afterwards she learned the names of the ten numerals or digits, of the punctuation and exclamation and interrogation points; some forty-six in all. With these she could express the name of everything, of every thought, of every feeling, and all the numberless shades thereof. She had thus got the '*open sesame*' to the whole treasury of the English language. She seemed aware of the importance of the process; and worked at it earnestly and incessantly, taking up various articles, and inquiring by gestures and looks what signs upon her fingers were to be put together in order to express their names. At times she was too radiant with delight to be able to conceal her emotions.

"It sometimes occurred to me that she was like a person alone and helpless in a deep, dark, still pit, and that I was letting down a cord and dangling it about, in hopes she might find it; and that finally she would seize it by chance, and, clinging to it, be drawn up by it into the light of day, and into human society. And it did so happen; and thus she, instinctively and unconsciously, aided in her happy deliverance. After she had mastered the system of arbitrary signs, made by the various positions of the fingers used by deaf-mutes and called dactylology, the next process was to teach her to recognise the same signs in types, with the outlines of the letters embossed upon their ends. Thus with types, two embossed with *p*, two with *n*, one with *e*, and another with *i*, she could, by setting them side by side in the quadrilateral holes in the blind man's slate, make the sign of *pen* or *pin*, as she wished; and so with other signs.

"The next process was to teach her that when a certain kind of paper was pressed firmly upon the ends of these types, held close together and side by side, there would be a tangible sign on the reverse of the other, as *pin* or *pen*, according to the position of the three types; that she could feel this paper, distinguish the letters, and so read; and that these signs could be varied and multiplied, and put together in order, and so make a book.

"Then she was provided with types having the outlines of the letters made with projecting pin-points, which, when pressed upon stiffened paper, pierced through, and left a dotted outline of each letter upon the reversed side. This she soon ascertained could serve

for writing down whatever she desired, and be read by herself; and also could be addressed to friends, and sent to them by mail.

"She was also taught to write letters and words with a lead pencil, by the aid of the French writing-board . . . . .

"It would occupy more space than can be spared here to explain how, after she had learned the names of substantive nouns, or names of things in the concrete, she came to understand words expressive of the various material or moral qualities thereof. The process was slow and difficult, but I was so aided by her native shrewdness and her love for learning new things that success followed. For instance, she knew that some girls and women of her acquaintance were very sweet and amiable in their tempers, because they treated her so kindly, and caressed her so constantly. She knew, also, that others were quite different in their deportment; that they avoided or repelled her, and were abrupt in their motions and gestures while in contact with her; and might be called, therefore, sour in their tempers. By a little skill she was made to associate in her mind the first person with a sweet apple, the other with a sour apple, and so there was a sign for a moral quality. This is a rough illustration; but it is hard to explain the process by which any children come to understand the names of things in the abstract, or moral qualities. Success came of faith, and patience, and reliance upon her having the native desire and capacity for acquiring a complete arbitrary language, which desire had now become quickened to a passion for learning new signs. Moreover, I was greatly aided from the start by young lady teachers, who became in love with the work, and devoted themselves to it with saintly patience and perseverance. Then great assistance was given by the blind pupils, many of whom learned the manual alphabet and took every opportunity of using it and conversing with Laura. Thus early in the process the material and moral advantages of language began to show themselves. Without it the girls could only manifest their interest in Laura and their affection for her as one does with a baby, by caresses, sugar-plums and other gifts, and by leading her up and down, and helping her in various ways. With it they began human intercourse through regular language.

"And so she went on, diligently and happily, for a score or more of years, until at last she acquired a large vocabulary of words, and could converse readily and rapidly with all deaf-mutes, and all persons who could use these signs. She could read printed books readily and easily, finding out for herself, for instance, any chapter and verse of Scripture. She could also read letters from her friends in pricked type, or by the Braille system of points. She could also write down her own thoughts and experiences in a diary; and could keep up a correspondence with her family and friends by sending to them letters in pencil, and receiving their answers either in pricked letters, which she could read by the touch, or letters written with ink or pencil, which could be read to her by some confidential seeing person.

"Thus was she happily brought at last into easy and free rela-

tions with her fellow creatures; and made one of the human family . . . . .

"During many years Laura passed most of her time in exercises such as those above described; new ones being devised as she proceeded. She spent as many hours daily in her studies and mental work as was consistent with her health; but all the rest of the time was given to gymnastics, or learning to handle domestic implements, as the broom, the dish-cloth, and the needle; to sew, to knit, to braid, to occupy herself in simple house-work, sweeping floors, dusting furniture, making beds; finally, to more difficult kinds of work, as crochet-work and the like.

"In all these things she succeeded so well, that she is now capable of earning a livelihood as assistant to any kind and intelligent housekeeper who would accommodate her work to Laura's ways.

"The method of instruction was, of course, novel, and the process long and tedious, extending over several years, until she came to be able to read and understand books in raised letters; to mark down variously shaped signs upon a grooved paper, and so write letters legible by the eye; to attain a pretty wide command of the words of the English language, to spell them out rapidly and correctly, and so express her thoughts in visible signs and in good English. To make all this fully understood by specimens of her style as she used the language of childhood, will require a good-sized volume; and I confine myself now merely to saying that in the course of twenty years she was enabled to do it all. She has attained such facility for talking in the manual alphabet, that I regret that I did not try also to teach her to speak by the vocal organs, or regular speech. The few words which she has learned to pronounce audibly prove that she could have learned more."

It is stated also that Laura is now forty-four years old. "She has a feminine delight in personal ornamentation; she loves to have showy and fashionable dresses, bonnets and the like, and trinkets for her dressing table."

Dr. Howe died at the beginning of the present year, since the foregoing report appeared. It is to be hoped that the world will not be deprived of the more elaborate account of Laura's education which he intended to publish. Himself the inventor of printing in raised letters for the use of the blind, he also laboured much to improve the condition of idiots and the feeble-mindde generally.

II. Physiological and Pathological.

A Theory of Heredity.—Mr. Francis Galton (*Journal of the Anthropological Institute*, 1875) has started a new theory of Heredity, in advance of Mr. Darwin's doctrine of Pangenesis. Mr. Darwin's "hypothesis" (as he carefully called it) is stated by Mr. Galton in the following series of propositions:—(1) There are cells and a

great number of gemmules. (2) The cells multiply by self-division, and during this process throw off gemmules. (3) The gemmules multiply by self-division, and any gemmule admits, under favourable circumstances, of being developed into a cell. (4) The personal structure is formed by a process analogous to the fertilisation of each gemmule that becomes developed into a cell, by means of the partially developed cell that has preceded it in the regular order of growth. (5) The sexual elements are formed by aggregations out of the gemmules, all of which are supposed to travel freely through the body. Mr. Galton allows (1) and (3); holds the process of cells throwing off gemmules in (2) to be of minor importance, as accounting only for the small class of facts, not yet sufficiently ascertained, of characters artificially created in the parents being transmitted to their offspring (see MIND I. p. 134); and takes ground against (4) and (5). Using the word "stirp" to express "the sum-total of the germs, gemmules, or whatever they may be called, which are to be found, according to every theory of organic units, in the newly fertilised ovum," he supposes that only part of the stirp becomes developed into the personal structure of the organism, leaving a residue, much larger, of undeveloped germs, out of which are formed the sexual elements entering into the next generation. The formation of the personal or bodily structure (he holds) proceeds by successive segmentations of the host of gemmules in the stirp, due to their mutual affinities and repulsions, followed by development of the dominant members in each sept thus formed. There is, he urges, every reason to believe that germs when developed into cells become infertile; hence the necessity for supposing that the characters transmitted from generation to generation are maintained by an undeveloped residuum in each division. The free circulation of gemmules throughout the body, assumed in Pangenesis, he rejects as physically inconceivable, also as involving consequences (*e.g.* that people would resemble their maternal grandmothers more than their other grandparents) altogether at variance with experience. Yet as all varieties of the gemmules must be supposed present in every part of the body in order to account for the reparation of tissues, &c., he provides for this part of the case by assuming that the divisions taking place in the stirp are never clean and precise, but always include stray and alien gemmules which find lodgment in the bodily tissues developed out of each segmentation. He is able upon his assumptions to explain Sex as evolved to secure the advantage of double parentage for the stirp; also to account for the facts he has very carefully established regarding Twins in another memoir (same vol. of the *Journal*), viz., that when "true" (*i.e.* developed from the same ovum or primary stirp), they are either extremely alike or (more seldom) so unlike as to be contrasted and, in a sense, "complementary" the one of the other. EDITOR.

Intermittent perception of very weak sounds.—Urbantschitsch points out that when a watch is held at a distance from the ear where it

can scarcely be heard, the ticking is by no means heard uniformly, but there is an apparent increase and decrease in the sound—a *crescendo* and *diminuendo* on a small scale. So marked is the effect, that occasionally the sound dies away, disappears, and again is heard distinctly. This intermittent auditory sensation is analogous to the well-known optical phenomena of the disappearance and re-appearance of after-images. He proceeds to show (1) that the variability of the sensation does not depend on variations in the intensity of the sound of the watch, but on variations in the ear itself, because, when the faint sound is listened to by several persons at the same time, the intermissions occur to the different individuals at different times, and are therefore subjective and not objective. He observed the same effects with the sound of a jet of water and with one of the resonators of Helmholtz placed before a tuning-fork kept in vibration by an electro-magnet. Neither (2) are the intermissions due to the movements of breathing or of the circulation. The cause of the variations are in the ear itself, and thus the question arises whether it is that the sound-conducting apparatus is incapable of transmitting sounds of feeble intensity uniformly, or whether the fault lies in the sound-receiving apparatus in the internal ear. He found (3) that the variations were noticed even in cases of perforated tympanic membrane, and in the case of a woman in whom the bones of the ear were partially disorganised. So far then as the sound-conducting apparatus is concerned, the effect might be due to the action of the stapedius muscle, which, Toynbee states, is in action during the act of listening. If, as Toynbee asserts, the function of the stapedius is to lift the stirrup-plate from the oval window, and thus make it susceptible of the smallest vibrations, one might reasonably suppose that the weak muscle would speedily be exhausted during the act of listening, and thus from time to time relax itself, or, on the other hand, that from over-excitation it might become tetanised. In either case—relaxation or tetanus—there would be a corresponding diminution or disappearance of the sound. But (4) it has been shown by Wreden that variations in the pressure of the base of the stapedius on the oval window cause various auditory sensations, often of a distressing character, and the absence of these in the present case is against the view that the intermissions of sounds of weak intensity are caused by the stapedius muscle. (5) The intermissions also occur when the sound is transmitted through the bones of the head without the action of the conducting apparatus of the ear at all. Consequently we arrive at the following conclusion: —The receptive capacity of the auditory nerve with respect to sounds of very feeble intensity is not uniform, and if these faint sounds continue, its capacity is temporarily even entirely lost (*Centralblatt*, p. 625). The Reporter would venture to remark that possibly the cause of the variations may be owing to intermittent action in the perceptive auditory centres within the brain.

Rivalry of the Fields of Vision.—According to Schön and Mosso this phenomenon may be observed if one eye be closed and the other looks at a uniformly coloured surface, without fixing attention specially

upon it. That part of the field common to both eyes is then seen to become alternately brighter and darker. The rhythm of the obscurations differs in different persons, but always so that every observer attends about 7-10ths of the time only to the open eye and 3-10ths to the closed one. If the power of the eyes be unequal there is no obscuration for the good eye, whereas it is permanent for the bad one. The phenomenon is not observed in reading, as the attention is directed to the open eye.

On Binocular Colour Mixture.—Many persons are unable to observe a binocular combination of colours, the colours not uniting to form one image, but appearing alternately or perhaps being seen side by side in the visual field. W. v. Bezold and Dobrowolsky have investigated the matter with great care. According to v. Bezold the cause of differences of opinion as to the possibility of binocular colour mixture lies in the necessary variations in the accommodation of the two eyes. To an observer, both of whose eyes are of exactly equal structure, it seems impossible to see with the same distinctness differently coloured surfaces in the same plane or to combine them binocularly. Either the distances of the two surfaces from the eyes must be different, or the two eyes must be differently focussed. But if the illumination of the two colours be equal, and if a cross be placed within the surfaces to facilitate fixation of the eyes, v. Bezold found it possible to obtain binocular colour mixture, and he had the same results as by the use of Maxwell's colour-top (*Annal. d. Physik. u. Chemie*, p. 585). Dobrowolsky confirms v. Bezold's experiments, and describes others made by himself with the stereoscope. He succeeded after practice in obtaining the compound colour purple by placing a weak concave glass before the eye which was fixed on the blue surface, and a convex glass of corresponding power before the other eye which had to look at the red surface. He also found that some persons could obtain binocular colour mixture readily on account of the unequal refraction of their eyes. (Pflüger's *Archiv.* X. p. 56.)

The History of Young's Discovery of his Theory of Colours.—Alfred M. Mayer has made a most interesting historical and critical communication on this subject to the *Lond. Edin. and Dub. Philosophical Magazine* for February, in which he shows (1) that Young formed an hypothesis similar to that known as Brewster's (red, yellow, and blue, as the three simple colour-sensations); (2) that he subsequently modified his hypothesis and adopted red, green, and violet as the three elementary colour-sensations; (3) that this change of opinion as to the three elementary colours was made on the basis of a misconception by Wollaston of the nature of his celebrated observation of the dark lines in the solar spectrum, and also on the basis of an erroneous observation made by Young in repeating Wollaston's experiment; and (4) that Young afterwards tested his hypothesis of colour-sensation, and found that it was in accord with experimental facts. Professor Mayer also quotes from Young's Bakerian Lecture "On the Theory of Light and Colours," delivered before the Royal Society, Nov. 12th, 1801, to show that Young imagined

"each sensitive point of the retina to contain *particles* capable of vibrating in perfect unison to those vibrations causing three principal colours, and that each of the particles is capable of being put in motion, less or more forcibly, by undulations differing less or more from a perfect unison. This would suppose such a triple *molecular* constitution of each nerve fibril as to cause the three species of its constituent molecules (or the atoms forming the molecules) to be *in tune* with the three rates of vibration corresponding respectively to the undulations of the æther causing red, yellow, and blue." In the same journal for May 1875, Prof. Mayer expressed similar views, substituting, however, for yellow and blue, green and violet according to the later theory of Young, revived by Helmholtz, and at present held by physiologists. The Reporter would observe that even with the highest microscopic powers now in use there is no fresh histological evidence in support of the theory, and any one might quite legitimately transfer the hypothetical differences of structure to the central organs.

Influence of Spinal Paralysis in Children on the Development of the Cortex of the Brain.—Various experimental researches have shown that when one or more of the external organs of sense have been destroyed in animals soon after birth, portions of the brain corresponding to these senses are not fully developed. Now it is not uncommon to meet with persons who have been the subjects of spinal paralysis from early life, and who are often of weak mind, and it becomes of importance to ascertain whether the paralysis will result in non-development of certain parts of the brain. It is not unlikely that at a time when the development of the brain is still far from complete, as in early childhood, and when the most important psychical functions and their manifestations through muscular activity are only present in embryo, any disease which would interfere with the normal connection between the brain and the muscles would not be without influence on the development of the psycho-motor centres in the convolutions, the existence of which has been recently demonstrated. As bearing on this interesting question, Sanders has recorded a case of a boy who died at the age of 15, after having been the subject of spinal paralysis for 12 years. After death, in addition to atrophy of the muscles and motor nerves, the anterior columns of the cord and the anterior cornua were also found atrophied. The brain (*a*) was carefully compared with that of an idiot (*b*) who had no paralysis, and with that of a healthy person (*c*), and it was found that certain convolutions, or portions of convolutions, which contain the centres for movement were atrophied in (*a*), but not in (*b*) and (*c*). It was also found that in (*a*) there was greater atrophy of the centres belonging to the side which showed the greater degree of paralysis. The conclusion arrived at by Sanders is that the defective development of the convolutions was due to the atrophied and diseased condition of the anterior portion of the spinal cord. It would be important to have careful measurements made of the height and breadth of

the convolutions supposed to contain the motor centres in all cases of hemiplegia of long standing. (*Centralblatt*, p. 225.)

J. G. McKendrick, M.D.

Mental Automatism in Epileptics.—Actions of an elaborate character, apparently performed without consciousness, are often seen in epileptics as isolated phenomena amid normal mental processes. They occur after, or possibly replace, epileptic paroxysms. Dr. Hughlings Jackson (*West Riding Asylum Reports*, vol. V.), believes that they result from the over-action of cerebral centres which are high but not the highest, this over-action resulting from the withdrawal of the controlling influence of the highest centres by the epileptic paroxysm. The more imperfect the paroxysm, the more elaborate is the automatic mental action. Some fits are so slight as to involve consciousness only (attacks of "*petit mal*"). It is after these that the most complex action is seen. In a fit the processes of cerebral action are resolved into their most general elements. The slighter is this resolution (*dissolution* Dr. Jackson calls it), the more special, *i.e.*, the more complex is the subsequent automatic process. Actions rendered automatic by frequent repetition, as playing the piano, may go on undisturbed by a very slight, though distinct paroxysm. Or fresh automatic action may be developed. These new actions are often the same in *form* as those present in the patient's consciousness before the attack, but different in *contents*. Among many examples given are these:—An epileptic in an omnibus suddenly blew his nose on a newspaper, and when he went out gave the conductor £2. 10*s*. A doctor was feeling a patient's pulse when an attack came on; on recovering, he began to feel his sister's pulse, who was near him. A man, whose sister was going to prepare some cocoa, went suddenly into the kitchen, and was found there mixing some cocoa in a dirty gallipot containing cats' food. A woman almost cut her arm off with a knife with which she was going to cut some bread. In some cases the actions appear to be the result of an epileptic dream, its character being determined by sensory phenomena in the paroxysm. The medico-legal bearing of these cases is obvious. Most of these actions were absurd, but an act of violence in any one of the cases would have had the same significance.

The Contagion of Insanity.—Dr. Daniel describes some cases in which specific delusions spread from one insane patient to another, and apparently actual mental derangement was produced in the healthy by prolonged intercourse with the insane. He points out that our ideas and feelings depend in large part on those with whom we are in constant association; that persons who live long together acquire similar modes of thought and moral temperament—some say similar physical characteristics. He asserts that, besides the rare epidemics of mental derangement universally recognised, asylums frequently present isolated instances of contagion. He has seen convalescents from mania distinctly acquire delusions

of persecution, &c., from frequent intercourse with insane persons affected with such delusions, and speedily lose them on isolation. The examples he gives of insanity acquired thus have some of their significance removed by the circumstance of consanguinity. But when prolonged contact with the insane does not cause insanity, it may determine irritability of character. (*Annales Medico-Psychologiques*, November, 1875.)

The Influence of Coloured Light on the Insane.—S. Ponza, director of the asylum at Alessandria, has investigated this point under the advice of Father Secchi, and recorded some results too startling and too few to be more than suggestive. Cases of mania were quieted in a few hours by being placed in a room, the walls and windows of which were red. Violet light is said in other instances to have been equally effective. In some cases a permanent cure was effected in a few days! (*Annales Medico-Psychologiques*, January, 1876.)

W. R. Gowers, M.D.

III. Philosophical Journals.

Zeitschrift für Philosophie und philosophische Kritik. Bd. 67. Hft. 2. Halle, 1876.

This number opens with the first of a series of articles in which Dr. Steffens is to show what knowledge of the history of Greek philosophy from Thales to Plato may be gained from the writings of Aristotle. After briefly indicating the extent of our dependence on these writings for a knowledge of ancient Greek speculation, the essayist quotes or refers to and explains the various passages which they contain bearing on (1) the general course of the development of Greek philosophy from its rise to the time of Plato; (2) the distribution and succession of the schools of philosophy during that period; and (3) the tenets of the Ionic physicists, Heraclitus included. If he collect and expound in the same careful manner all the scattered observations of Aristotle on the Eleatics, Pythagoreans, Sophists, and Socrates, the result will be a nearly exhaustive account of the information derivable from the Aristotelian works regarding the history of pre-Platonic philosophy in Greece. Such a result will amply reward the labour required to attain it. But it is to be hoped that Dr. Steffens will give us something more. The natural conclusion of the work which he has undertaken will be an investigation into the worth of the historical view of ancient Greek philosophy which he has drawn from Aristotle, showing how far that view must be accepted, how far other sources enable us to correct it, and how far there is reason to believe that our knowledge of ancient Greek philosophy is hopelessly imperfect. An investigation of this kind is none the less needed because all depreciatory estimates of Aristotle's qualifications as a historian of philosophy, such as those of Bacon, Schleiermacher, Lommatsch, and Dühring can be discarded at once as unworthy of discussion. The part of Dr. Steffens's essay which treats of the doctrine of

Heraclitus seems satisfactorily to prove that, if Aristotle's testimony is to be credited, the Ephesian philosopher was a genuine φυσικός, and not a Grecian Hegel; that to suppose, as Lassalle does, the identity of Being and Non-being to have been his fundamental principle and Fire merely a symbol of the dialectical process is wholly without warrant. This is also the conclusion to which the study of the Heraclitean fragments has led Dr. Paul Schuster, the author of the ablest recent monograph on Heraclitus. His treatise *Heraklit von Ephesos* is reviewed by Dr. Siebeck in the number of the *Z. f. Ph.* under examination. The general aim of Dr. Siebeck's criticisms is to show that reaction has carried Dr. Schuster somewhat too far, and that Heraclitus in some passages meant more than his interpreter allows.

In an article headed "Anti-materialism" Professor Hoffmann, the editor of Baader's Works, reviews Dr. Büchner's *Nature and Science.* Of course, he does not spare either the book or its author. The article displays a remarkably wide acquaintance with the literature of the materialistic controversy—a literature which in Germany has outgrown all reasonable bounds. The most interesting portion of the number to psychologists will undoubtedly be the elaborate paper in which Professor Fortlage states and defends his own views on the blending or coalescence of homogeneous elements in *Vorstellungen*, and attacks those of Ulrici, with the equally elaborate answer of Ulrici. It is impossible in the space at our disposal to give an intelligible summary of these articles. The subject of them is one of very great psychological importance, and they will be found specially helpful to the readers of Fortlage's *Psychologie* and Ulrici's *Leib und Seele.* The mistakes into which these two psychologists have fallen in studying each other are mistakes of a very natural kind, into which most readers will fall, while it is instructive to see how much real agreement there is between them even where, owing to the difference in their use of terms, they at first glance seem to be, and have believed themselves to be, at variance. Ulrici confines the term *Vorstellung* to conscious states, and consequently refuses to admit what Fortlage says about the blending of unconscious *Vorstellungen*, but he fully grants that there are unconscious psychical states and that these blend. Fortlage, defending himself against the charge of confounding the mental with the physical by insisting on what he calls "the law of attraction" and "the force of attraction," makes explanations which leave us in doubt as to his reasons for using the phrases at all. The attraction, he tells us, is not the condition or cause but the consequence and result of the coalescence. It is thus entirely different from the attraction which matter exerts on matter. Perhaps the point most emphasised by Ulrici is that representations do not coalesce of themselves.

Dr. Ulrici also contributes a short notice of Pfleiderer's *Modern Pessimism* and the first half of a review of Brentano's *Psychology.*

Zeitschrift für Völkerpsychologie und Sprachwissenschaft. Bd. 8. Hft. 4. Berlin, 1875.

The first article in this number is a criticism of Dr. Steinthal's views on human and animal mind by one of his disciples, Dr. Glogau. Dr. Steinthal has not yet taken up a decided position towards the Darwinian doctrine of descent. He has expressed dissatisfaction with the objections which have been urged against it and acknowledged in a general way that it may be true, but he has not accepted it as proved. This caution seems to Dr. Glogau excessive. He thinks the evidence in favour of Darwinianism conclusive and that Dr. Steinthal would have before now openly professed his adherence to it and would have ceased to speak, as he still continues to do, of absolute distinctions between the animal and human soul, had there not been deeply-rooted peculiarities in his character and aims which have prevented the natural development of his thoughts on the question of the origin of humanity. He proceeds to inquire what these have been—a rather delicate investigation to undertake in a journal edited by the person whose character is subjected to analysis, but one which is not uninteresting and which is conducted with considerable tact. He points out that an ethical ideal has floated before the mind of Steinthal from the beginning of his thirty years' career of research, and that his central and guiding conviction has throughout that time been that the law of moral life was not to be found in individuals or outside of or above humanity but only in humanity itself, the collective spirit, the *Allgeist* in which individuals live and move and have their being. In this conviction lies, according to Dr. Glogau, both the strength and the weakness of Steinthal. It explains his almost negative attitude towards the philosophy of religion; it explains equally his non-acceptance of Darwinianism. Dr. Glogau argues, in conclusion, that there are no essential distinctions between the animal and human souls; no gulf which the Darwinian theory does not bridge over. Dr. Steinthal briefly replies. He cannot see, he says, that anything he has written concerning the differences between the souls of men and animals is anti-Darwinian, although it may not be Darwinian. The Darwinian doctrine of descent does not abolish or efface the distinctions between the different genera and species of the naturalist; it only explains them genealogically. It does not represent the varieties of living forms as having been developed in one long line but after the likeness of an extremely ramified tree. Hence it allows us to speak of absolutely distinct species even while it maintains the relativity of the notion of species. There are absolute distinctions between a mouse and an eagle, and there may be such distinctions between a man and an anthropoid ape. Man may never have been an ape; the ape may never be able through development to become a man. They may have had a common ancestor and yet may always have been, and may to all eternity be, in themselves distinct. Dr. Steinthal promises to define distinctly and fully his position towards the Darwinian theory on a future occasion.

The next article is a lengthened, careful, and able review of my *Philosophy of History in France and Germany* by Dr. Paulsen, whose work on Kant was briefly noticed in the first number of MIND. I have to thank him for his general approval of the volume and still more for his criticisms on certain portions of it. He conceives it to have been a mistake in me not to have stated my views as to the sphere, scope and method of the philosophy of history at the beginning of the work, instead of reserving them for its conclusion. The objection has been urged by others; with the greatest force, perhaps, by Mr. J. Morley. And I grant at once that the course I have adopted has most of the disadvantages and the course recommended most of the advantages which my critics have indicated. But the question which I had to consider was, which of these two courses had the most and greatest advantages and which the fewest and least disadvantages. It still seems to me that if this question be fully considered the conclusion I came to must be seen to be the right one. Dr. Paulsen also argues that in my Introduction I have not insisted sufficiently on the hindrances which mediæval Christianity, owing to its defective appreciation of secular life, placed in the way of the rise and spread of philosophical views of history. Now I certainly meant distinctly to indicate these hindrances and confess that I still think I have done so, although I did not, and do not yet, see the necessity of dwelling on truth which writers so popular as Buckle, Lecky, and Draper have fully stated, not to say over-stated. I was glad to economise my own pages by referring to theirs. Dr. Paulsen, like Mr. Mill and Mr. Morley, maintains the consistency of Comte's law of three states with adherence to Theism. His reason is that Theism is a form of belief but not a state of knowledge. I can admit no such distinction between belief and knowledge as this implies, and deny the right of any person to believe what he does not know. I must refrain from considering his remarks on the chapters devoted to Lessing, Herder, and Kant. He commends my examination of Hegel's philosophy of history but thinks it was almost unnecessary, as in Germany the Hegelian philosophy will soon be extinct. This remark is not quite worthy of my critic's natural perspicacity. It has been said that good Americans when they die go to Paris. Who can deny that bad German philosophies when they die go to Oxford?

Dr. Steinthal has a short notice of Spengel and Poske's translation of Tylor's *Primitive Culture*. He dissents, of course, from Mr. Tylor's views as to the origin of language, and especially from the way in which he has spoken of W. v. Humboldt, but justly and generously acknowledges his great merits.

Philosophische Monatshefte. Bd. xi., Hfte 9, 10; Bd. xii., Hft. 1. Leipzig, 1875-6.

The first article in the first of these numbers is an obituary notice of the late Professor v. Leonhardi, by Otto Busch, of Dresden. It is to be hoped that an adequate biography of this most devoted

Krausean and most zealous philanthropist may soon appear. The next article is a lecture on Schopenhauer, delivered in Madrid by D. José del Perojo. It contains a clear and succinct exposition of Schopenhauer's pessimism, and shows considerable insight into its self-contradictions, narrowness, and barrenness. It represents it at the same time as "neither a mere reaction from absolute optimism, nor a necessary consequence of it, nor the lamentation of a sickly misanthropic brain, but as the expression of a necessary phase of the human spirit." Del Perojo, it may interest our readers to know, is a young man of twenty-five years of age, a native of Santiago (Cuba), who, after having been initiated into the Krausean philosophy by Salmeron and G. Serrano at the university of Madrid, studied at Paris under Janet, Levêque, Taine, and Bénard, and at Heidelberg under Bartsch, Wundt, and K. Fischer. He has just published a volume entitled *Ensayos sobre el movimento intelectual en Alemania*, and proposes to issue a Spanish translation of the chief works of Kant, beginning with the *Kritik der reinen Vernunft*. He has chosen for his work in life to make German philosophy known to his countrymen. A note by Dr. Weigand on the literature of the Platonic Epistles may be found useful by those for whom it is intended.

In No. 10 Dr. Meinong administers a severe and merited castigation to Dr. Dühring for the manner in which he has characterised some of the most illustrious thinkers in his *Critical History of Philosophy*. According to Dr. Dühring, philosophy implies the co-operation of two factors, knowledge and will, and, in judging of those who have cultivated it, it is no less necessary to estimate aright their moral than their mental qualities, their disposition (*Gesinnung*) than their intellect. There may be a good deal of truth in this, but, as Dr. Meinong shows, Dr. Dühring's own disposition does not fit him to be a judge of the dispositions of others. He has given expression to the most unworthy estimates of the greatest philosophers of the past, and uses very unbecoming language regarding some of the most justly distinguished of his contemporaries. Dr. Meinong dwells especially on his treatment of Trendelenburg. It would not have been inopportune if he had also protested against the offensive way in which Dr. Dühring has thought proper, both in his *History* and in his recently published *Course of Philosophy*, to speak of Mr. Darwin and Mr. Spencer. It can do them no harm, but it is a pity to observe a man of real talent discredit himself by imitating Schopenhauer in his least commendable peculiarity. Pfarrer G. Knauer attempts to show against Dr. L. Weiss that the belief in atoms, so far from having any scientific foundation, is a mere illusion springing from "an antinomy of the pure reason" detected and exposed by Kant. "It is a disgrace to the nineteenth century," he says, "that it should still burden itself with this atom-mania, and even boast itself of it in the name of science."

In the two numbers of the *P. M.* thus far noticed there is a long essay by Max Drossbach on the "Perceptibility of Phenomena."

It attempts to prove that phenomena are not, and cannot be, perceived; and that all philosophy, realistic and idealistic, empirical and subjective, which has hitherto existed, being built on the false assumption that phenomena alone can be perceived, must be pulled down and a new structure raised on the true foundation, the diametrically opposite position. Phenomena are, he holds, the consequences of perceptions, and, therefore, cannot be their objects. We do not perceive our perceptions nor the representations to which they give rise, but only the forces which through their action upon us produce or determine them. Causes are the very things, and the sole things, which are perceived. The ordinary empiricism which passes for experience presupposes what may be called an *à priori* experience, in which causes and existences in themselves are directly given to us. It is only by the help of this theory, he thinks, that subjectivism in philosophy can be overcome. He briefly indicates how his views as to the nature of atoms, of space, of time, and of the order of the phenomenal world, are connected with his views as to the nature of perception.

The chief article in the last of the numbers before us is by Dr. Hans Vaihinger, on the "Three Phases of the Naturalism of Czolbe." It is an admirably clear and comprehensive account of the various stages through which that thinker's speculations passed. Those who have had their curiosity regarding him awakened by the pages which Lange has devoted to the first two phases of his philosophy in the *Geschichte des Materialismus*, or the brief notices in Ueberweg, Meyer, &c., will here find it gratified in a considerable measure; those who have read a few of his writings will be still more likely to welcome such a survey of his whole speculative development. This number contains also a most elaborate summary of the first two of Professor v. Stein's *Seven Books on the History of Platonism*. It concludes with an obituary notice of F. A. Lange, by Dr. Cohen, and the touching address delivered over his grave by Dr. Nissen.

Athenæum, Erster Jahrgang. Hefte 4-8. Jena, 1875.

The papers in these numbers which have most claim to notice in a periodical like MIND are Dr. v. Hartmann's "Contributions to the Physiology of the Central Organs of the Nervous System," in pts. 4, 5, and 6. They aim at giving a view of all the more important results of recent research in this sphere, while omitting anatomical and physiological details of interest only to the professionally educated. Dr. v. Hartmann thinks neither Maudsley's *Physiology and Pathology of the Mind* nor Wundt's *Grundzüge der physiologischen Psychologie*—the two works in which the subject has been best treated—altogether satisfactory. The former does not now give us the most recent results of investigation, and the value of the latter is much lessened by the erroneous notion that the passions are dependent on the conceptions instead of the conceptions on the passions,—by its author's want of insight into the unconscious emotional life of the soul and into the power and significance of the will. Dr. v. Hartmann attempts to combine the leading ideas of

Maudsley with the materials supplied by Wundt, so as to correct and complete the teaching of the one by that of the other. Of course, he also endeavours to show that the physiological facts and doctrines which he presents confirm and illustrate his philosophy of the Unconscious. These papers have just been transferred into the new (7th) edition of Dr. v. Hartmann's principal work, where they are sure to attract enough of attention. On this account it would be out of place to linger over them in the notice of a journal.

Dr. Otto Zacharias has in No. 6, an essay on "The Origin of Life in the light of the Development Theory." He expresses his dissatisfaction with the view that life originated on the earth at a given time out of non-living matter and declares for that which Quinet and Preyer have put forth, namely, that the earth carried life along with it from the mass whence it was detached; that life is not linked to certain points of space or periods of time; that it is of a cosmical not of a terrestrial nature and has been coæval with the universe. Dr. Zacharias has not endeavoured to prove this theory and has not condescended to consider any of the objections which readily present themselves to the mind against it.

Among the notices or analyses of books, etc., I may mention those of Venezianer's *Allgeist*, Despines' *De la Folie*, Wundt's *Aufgabe der Philosophie*, Strumpell's *Natur und Entstehung der Träume*, Lange's *Geschichte des Materialismus*, Renouvier's *Science de la Morale*, and Marselli's *Scienza della Storia*.

R. FLINT.

Revue Philosophique de la France et de l'Etranger. Dirigée par Th. Ribot. Première Année, Nos. I.—III. Paris, 1876.

The appearance, simultaneously with MIND, of a new French review which proposes to present "the actual philosophic movement without exclusion of any school," is not without significance for those who are hoping that all future philosophic construction will set out from a well-assured and commonly accepted basis of scientific truth. The editor, M. Th. Ribot, is favourably known in this country not only for his careful studies in philosophy, more especially the English and later German developments, but also for his acquaintance with those objective lines of research which in the view of most living psychologists have a direct bearing on their special science; and his excellent preface, which is borne out by the contents of the first three (monthly) numbers, testifies to his ample interpretation of the present philosophic movement.

The original articles in No. I., include, in addition to a translation of Mr. Herbert Spencer's article on "The Comparative Psychology of Man," two papers of considerable interest. The first is by M. Taine, and deals with "The acquisition of Language in Children and Primitive Peoples." It traces the successive stages in the first employment of vocal sounds by an infant girl, as noted in a series of careful observations. The writer emphasises the spontaneous element in this acquisition, and points out how the child began of herself to extend the denotation of her terms by a

rough process of generalisation. Arguing that the mental state of the child corresponds to that of primitive societies, M. Taine proceeds to indicate the agreement of these observations with the views of Mr. Max Müller respecting the acquisition of language by the race. The second article, which is very pleasant reading, is from the pen of M. Janet, and has for its subject the vexed question of "Final Causes," being the introductory chapter of a book which he is about to publish under that title. He defines the inquiry and points out the abuses to which the idea of Final Cause is liable.

No. II. contains three articles of general interest, besides an erudite discussion of the "Nuptial Number in Plato," which can hardly be said to address itself to philosophic students as a whole. The first of these three, on "The Mission of Philosophy at the present time," is a translation of an address delivered by Professor Wundt on the occasion of his instalment in the chair of philosophy at Zürich. It is remarkable for the decided way in which it asserts that no existing German philosophical system, not even that of Kant or the newer doctrine of Herbart, is fitted to be a synthesis of the results of the several branches of modern scientific research, though these researches, distinctly pointing to a conception of the universe as a unity, are inviting such a synthesis. The second article is by M. Ch. Bénard, and gives a careful *résumé* of the work of the two schools of German Æstheticians,—the Hegelian idealists and the Herbartian realists, each of which is regarded by the writer as of like value in making good the deficiencies of the other. In a third paper Mr. G. H. Lewes re-states more fully his objections to the hypothesis of the Specific Energy of the Nerves, reasoning, much as Professor Wundt has recently done, that the various groups of sensory nerves acquire their special sensibility by a process similar to that by which movements become automatic, that is to say though innumerable excitations of a peculiar form determined by the structure of the peripheral organs.

The most important article in No. III. is from the pen of the editor himself, and is an excellent summary of recent research carried on by physiologists, chiefly German, into the "Duration of Psychical Processes," including those of perception and volition, as well as those of reproduction, so far as these last have been subjected to objective measurement. After this, in order of importance, comes the first of a series of articles by M. E. Vacherot on "The antecedents of the Critical Philosophy," which is perhaps a little too *weitläufig* (as the Germans would say) to supply much new elucidation of Kantism. There is also a translation of J. S. Mill's excellent criticism on Berkeley's Philosophy, published originally in the *Fortnightly Review* on occasion of Prof. Fraser's edition of his works. A noteworthy feature in this last number is the appearance of the heading "*Observations et Documents*," under which M. Taine give us a group of pathological observations of singular interest for the psychologist. The disease which is called "Cerebro-Cardiac Neuropathy" and which has been made a special study by Dr. Krishaber, is supposed to consist in a contraction of the blood-

vessels which nourish the sensory centres, and is attended by a perversion of the sensations though the intellectual functions proper are unimpaired. The sudden rupture of continuity in all the elements of experience is interpreted by the patient not merely (as one might expect) as the substitution of a new external world for the old, but also as a break in personal identity. His first conviction is that he no longer exists; this gives place to a belief in a new personality, when the fresh order of things proves itself to be stable. M. Taine thinks these cases throw more light on the growth of the idea of the ego than a volume of metaphysics. We shall look for more of this kind of psychological interpretation of pathological observation from the same competent hands.

JAMES SULLY.

The Journal of Speculative Philosophy, Vol. ix. No. 4. (Edited by WM. T. HARRIS.) St. Louis, Mo.

The first number of the *Journal of Speculative Philosophy*, published at St. Louis, in the State of Missouri, appeared in 1867. It is certainly remarkable that the first attempt to establish a Philosophical Review in the English language should have been made in so remote a quarter, and under the auspices of men at the time unknown to the literary and scientific world. Mr. Wm. T. Harris (now Superintendent of the City Public Schools), met in St. Louis with a small circle of cultured Germans who believed with heart and soul in the mission of the apostles of Pure Reason. The little band of ardent students gathered together frequently to master and discuss such writers as Kant, Fichte, Hegel, until they became penetrated with the conviction that the hope of the world lay in appropriating the spirit and method of the masters of Transcendentalism. "The 'Palingenesia' of the intellect is as essential as the 'regeneration of the heart,' and is at bottom the same thing as the mystics teach us." They saw clearly the intellectual disorder of the time, the disintegration of old creeds, the tendency of science to pass beyond the empirical stage, and they offered to smooth the path of their countrymen to the shrine of Absolute Truth. "Our course in the practical endeavour to elevate the force of American thinking, is plain; we must furnish convenient access to the deepest thinkers of ancient and modern times. To prepare translations and commentary together with original exposition, is our object. Originality will take care of itself. Once disciplined in Speculative thought, the new growths of our national life will furnish us objects whose comprehension shall constitute original philosophy without parallel." It must be admitted that Mr. Harris and his friends have amply redeemed their promise. Few English readers probably are aware of the number of first-class works in philosophy they may now study (whole or in part) in their own tongue. The following are only a sample. Leibniz's *Monadology*, Descartes' *Meditations*, Fichte's *Sun-clear Statement of the Science of Knowledge* and *New Exposition of the Science of Knowledge* (*Neue Wissenschaftslehre*), Schelling's *Introduction to the Philosophy of Nature*,

Hegel's *Outlines of Logic*, chapters from his *Phenomenology of Mind* and *Æsthetics*, chapters from the works of Schopenhauer, Herbart, &c. This list conveys, however, but an incomplete idea of the amount of good work done by this journal in the way of translation. A variety of small treatises and important single articles by well-known names help to put the English reader in a position to understand the latest results of philosophical thinking in Germany. It should be added that a large amount of space is given to Æsthetics and æsthetic criticism. The editors see in Art the fore-court to the temple of Religion. It has at the present time the advantage of being open to all, while affording a high spiritual discipline. It is sufficiently evident where these writers stand. It is from Plato and Hegel that they derive both the form and content of their doctrine. The human mind must pass through the three stages of sensuous knowing, reflection or understanding, and reason or speculative insight. Science is emerging out of the first stage into the second. In a noteworthy article on Mr. Spencer's *First Principles*, the editor, in the first number of the *Journal*, treated the "Synthetic Philosophy" as the typical expression of the second (and intermediate) phase of Science. Mr. Spencer's system, he maintained, is not an ultimate synthesis, so long as there remains that dark figure of the Unknowable unreconciled with the bright verities of phenomenal experience. The last number which has come to hand, that for October 1875, contains an article stretching to 64 pages, from the pen of Dr. J. H. Stirling, entitled, "Mr. Buckle and the *Aufklärung*," in which Buckle and his type of thinking are treated as phenomena already vanishing. "What we live in now is *Aufklärung* degenerated into *Aufklärerei*." In the same number is continued a translation of Kant's *Anthropology*, begun in the July number, by A. E. Kroeger, a translator who has done good service from the establishment of the Journal. Mr. Anderson asks "What is Logic?" and answers that it is the Science of Things, not of Thought nor Forms. "Logic is the science of substances and qualities as such." The department of Correspondence is interesting. Dr. Hickok replies to the editor's remarks on his book entitled *The Logic of Reason* in the former number, and arrives at the conclusion: "The attempt to speculate is vain by abstract thinking alone. Speculation seeks an ultimate, and no abstract thinking can reach it. As already seen in the category of the universal, thinking can presuppose but cannot verify; so also is it helpless in all categories." From which it appears that the principles of the Journal do not always pass unchallenged. To whatever school the reader may incline, he cannot, however, but allow that these workers in the West are deserving of most grateful recognition.

W. C. Coupland.

XI.—NOTES.

The Uniformity of Nature.—Professor Bain maintains that we can give no reason for our belief that the future must resemble the past; but that the postulate of the uniformity of Causation is an assumption. We must risk it, we cannot logically justify it. Although, as a matter of fact, we believe that water will boil at 212° F., "there is no contradiction in saying that a million of years hence the boiling point at the ordinary pressure of the air will be raised to 250° F." (MIND, No. I., p. 146.) I have maintained that the true expression of the uniformity of Causation (usually called Nature's uniformity) is the simple assertion of identity of effect under identical conditions; whatever is, *is* and *will be* so long as its conditions are *unchanged;* and this, I say, is no assumption at all, but an identical proposition. (*Problems of Life and Mind*, vol. II., p. 99.)

The psychological grounds on which we believe in uniformity are not quite the same as the logical grounds on which we may justify that belief. The belief proceeds on an assumption, but what is assumed is the identity of past and future: we believe that the water will boil at the same temperature to-morrow as to-day, and a million of years hence as to-morrow, only when we have no ground for suspecting any change will take place in the conditions which determine the boiling of water; knowing quite well that if there is a change in the conditions there must be a corresponding change in the result. When this belief has to be logically justified it can only be by reducing its terms to the terms of the identical proposition—"there will be no change unless there is a change." The combinations of Nature are incessantly varying, the uniformity of Nature is the identity of result under identical conditions. It is not more irrational to suppose the boiling point of water to be raised to 250° F. under certain changes in atmospheric pressure, than to suppose it lowered to 100° under other changes; but to suppose that, while the conditions represented by the 212° boiling point remain unchanged, there will be any change in the result, is to suppose (as John Mill supposed) that 2 + 2 might possibly equal 5 in another universe.

Professor Bain rejects my view, unless I am understood to include Time and Space among the conditions; in that case he will admit it. "Is he prepared," he asks, "to set aside time and space as not being conditions, as not needing to be taken account of at all?" I answer: Time and Space are abstractions; drawn, indeed, from concrete experiences, but not operative as abstractions among physical agencies. He declares that, "although the physical conditions of an effect remain as they are, the effect may not be constant through all the eternity of years, and all the infinitude of space." Does this mean that an effect depends partly on its physical and partly on metaphysical conditions: or that an effect is the product of all the physical conditions *plus* the abstraction Time? The

movements of the planetary system symbolised in the phrase, "the eternity of years," may conceivably bring about such changes in the molecular movements of bodies, that effects now observed under the present conditions of movement will no longer be observable; but this only on the supposition of a corresponding change in the conditions; and for this supposition we do not need to invoke eternity, or the abstraction Time: we see *such* interruptions of the uniformity of Nature under the present variableness of conditions.

I have ventured to re-open this question because the objection, that I do not take into account the possibility that Time may be a condition in causation, has been urged by Professor Clifford, Mr. Pollock, and Professor Bain; and urged by such writers it ought not to be left unanswered. Perhaps I do not rightly seize their meaning; at any rate the readers of MIND have here a topic on which to exercise their ingenuity; and some one of them may see how the question admits of settlement.

GEORGE HENRY LEWES.

Space through Sight and Touch.—Our habitual thoughts of space are all associated with sight, yet since the time of Berkeley it has been the general belief that the conception of space has been originally derived altogether from touch. I think this is not only true, but as nearly a demonstrated truth as the nature of the case admits of, and the proof that I think conclusive is as follows:—

A being with no sense except sight, and no power of locomotion, might acquire a conception of space, but it would be very unlike space as we conceive it. It would be space of two dimensions only, there would be nothing to indicate distance between the eye and any object: all things would be seen projected on a sphere as we see the heavens, and all magnitudes would appear angular. If then such a being afterwards acquired powers of touch and motion, it would acquire the conceptions of a third dimension in space and of linear extension; but angular magnitude would always continue more familiar to its thoughts than linear, and it would think of extension, both superficial and solid, in terms of polar rather than rectilineal co-ordinates.

On the contrary, a being with the sense of touch and the power of motion, but without the sense of sight, would learn to think of space in terms of rectilineal rather than polar co-ordinates; and if it were afterwards to acquire the sense of sight it would still retain the same habit of thought.

We may infer the latter to be our case: we spontaneously think of space in terms of rectilineal co-ordinates. No one has any clear idea of the meaning of angular magnitude until he has received his first lesson in geometry; and to any one whose ideas on the subject are purely spontaneous, it will appear not a simple geometrical truth, but an utter absurdity, that neither a straight line nor a plane surface can become an object of sight. (See *Reid's Geometry of Visibles.*) Moreover, common language abounds in words expressive of the relations of space in terms of rectilinear co-ordinates: such words

as above, below, before, behind, right, left, inch, and mile; while such words as angle, degree, altitude, and azimuth, which express the relations of space in terms of polar co-ordinates, belong to technical and scientific language. Although we have no means of recalling the process by which either the individual or the race originally acquired the conception of space, these facts seem conclusively to prove that it must have been through touch rather than through sight.

JOSEPH JOHN MURPHY.

The Gratification derived from the infliction of Pain.—In his new edition of *The Emotions and the Will*, Professor Bain repeats his conviction that in Anger there shows itself "an impulse knowingly to inflict suffering upon another sentient being, and to derive a positive gratification therefrom" (p. 177). He also adds, for the first time I believe, in discussing the sentiment of Power, (p. 195), that "the pleasure of power in its coarsest and brutal form . . . is the pleasure of putting others to pain," so that the two feelings of anger and power are "at bottom almost identical." At the same time he rejects Dugald Stewart's notion that cruelty is resolvable into an abuse of power, and holds that we may just as easily make malevolence the basis of the delight of power (p. 195). [The exposition of Power follows that of Anger in the present edition instead of preceding it as in the earlier edition.] That is to say, while Mr. Bain admits the close connection of the two sentiments of Malevolence and Power, he does not allow that the former can be derived from the latter, but maintains on the contrary that the pleasure found in inflicting pain rests on a primordial form of emotional susceptibility, namely, "the fascination for the sight of bodily infliction and suffering" (p. 178). Now it seems to me that by help of the hypothesis of Evolution this curious mode of gratification may still be shown to be derivative. That there is a certain fascination in the spectacle of another's suffering, even to humane persons, does not show that the suffering gives *pleasure*, any more than that certain forms of the ugly, the monstrous, and the terrible, can be said to be pleasing because they exert a spell on the spectator. All these effects of fascination seem to me to be *painful*, the action of watching the particular objects being largely involuntary, though it is possible that the repeated recoils from the painful object with the intervening moments of relief afford a state of mental excitement which people not troubled by kind feelings would sometimes care to seek. At the same time there is without doubt a very distinct ingredient of pleasure obtained by most, if not all, persons in *inflicting* pain under certain circumstances, and it seems probable that the intense pleasure which brutal persons derive from the mere spectacle of suffering may be a reflection from this. The spectator conceives himself more or less distinctly as taking part in the actual infliction of the suffering he witnesses. The problem then becomes: whence arises the intense pleasure found in the infliction of Pain?

From the evolutionist's point of view, there is much to be said for Stewart's hypothesis that the pleasure of malignity springs from the emotion of power. We may perhaps conceive the simplest mode of the gratification of power as arising from success in capturing prey or in triumphing over rivals, in which cases there is something more than a feeling of relief at the mere deliverance from harm. The lower animals exhibit very distinctly a capacity for this form of enjoyment. A cat's pleasure in prolonging the life of its victim seems to be due to a desire to extend and renew this simple form of the delight of power. On the other hand it is doubtful whether the lower animals derive any gratification from the conscious infliction of pain. We may imagine perhaps that the capacity for this enjoyment was developed in some early predatory stage of human history, when the sentiment of power, as a feeling of triumph in combat, had attained a considerable development, and intelligence had reached a certain height. The impulse to inflict pain (as distinct from killing or maiming, that is, rendering powerless or harmless) might grow up somewhat in the following way. First of all the infliction of pain would gradually become firmly associated with the weakening of a dangerous adversary, since pain is one of the surest means (short of total destruction which is often impossible or undesirable) of securing freedom from future attack. In this manner the disposition to cause suffering in an adversary would be sustained by the deep-rooted instinct of self-defence. In the second place, at this stage of mental development the sentiment of power would lend a strong support to the impulse of tormenting. For in all kinds of combat it would be seen that avoidance of pain is the thing specially aimed at in defence, and so the infliction of pain would naturally present itself as a striking effect and proof of superiority. Not only so: in this stage of intelligence a man would begin to look on voluntary submission in a defeated rival as an equivalent for complete physical prostration. The appropriate objects of the emotion would now be all signs of dread and of a readiness to submit in the person calling forth the feeling. Now pain is the natural precursor of dread, and hence the infliction of pain would, by association, acquire the pleasurable aspects of dread and servile cringing. Thus both the earlier instinct of self-defence, which seems to be the first ingredient in destructive anger, and also the later offshoot of power would unite to give a special value to all signs of pain inflicted on an aggressive foe or on an inconvenient rival. Does it not seem probable that the whole pleasure of inflicting pain, apart from the mere mental excitement already spoken of, is really due to these sources? This conclusion appears to be supported by the fact that the impulse of cruelty is invariably accompanied by some unmistakable form of the emotion of power. The boys who find the keenest delight in impaling moths and cockchafers and in tormenting cats are always those who, provided they are strong enough, hector it most loudly, and who love most to bully others into abject submission.

JAMES SULLY.

Anticipation of Mill's Theory of Syllogism by Locke.—Perhaps the most striking chapter in J. S. Mill's *Logic* is that in which he contends against the usual account of the nature and value of Syllogism, as propounded by Archbishop Whately and others. It is hardly necessary that I should do more than recapitulate the heads of his argument to any reader of MIND. All inference, he concludes, is from particulars to particulars, and he gives various illustrations of discoveries by practical men and of the everyday inferences of life where no general proposition intervenes. General propositions are merely registers of such inferences, and are of no actual use in making the inferences, but are convenient formulæ for making more, and are moreover useful as offering a larger object to the imagination than any singular proposition (which I think false), and as likely to show the falsehood of an inference more clearly by comprising many particulars some of which may contradict our previous knowledge. The interpreting of our own registers is, however, not a strict process of inference; and syllogism is really an inference from particulars to particulars, authorised by a previous inference from particulars to generals (which again is based on inference from particulars to particulars) and substantially the same with it.

In the earlier editions of his *Logic*, Mill distinctly announced this theory as new, but subsequently modified this claim and admits the assertion of Sir J. Herschel (*Essays*, p. 367) that it was substantially anticipated by Berkeley. It seems strange that all the critics of the theory should have passed over the much more precise and explicit anticipation in Locke's *Essay*, which was of course in this matter the source of Berkeley's remarks. But Locke is an author much more quoted and criticised than read in England, and I do not know that his great and suggestive book is anywhere else made a text-book now, as it is in Dublin. The prominence of Locke in our university course makes us wide-awake, not only to the false criticisms of his system which are widely prevalent, but to the many professed discoveries which are plainly indicated long ago in his famous work. But a stray suggestion cannot be fairly called an anticipation. Here the prior claims of Locke rest on no such insecure basis. Any one who will take the trouble to read Locke's *Essay* bk. IV., chaps. 7, § 11, and 17, §§ 4-8, will find Mill's whole theory clearly and explicitly laid down. I will quote the substance of some of the leading passages. "Would those who have this traditional admiration of general [maxims], that they think no step can be made in knowledge without a general maxim or axiom, but distinguish between the method of acquiring knowledge and that of communicating, they would see that these general maxims were not the foundations on which discoverers raised their structures. Though afterwards, in the schools, teachers often made use of these self-evident propositions to convince their scholars of truths in particular instances that were not so familiar to their minds as those general maxims already inculcated, and carefully settled in their minds. Though these particular instances,

when well reflected on, are no less self-evident to the understanding than the general maxims brought to confirm them; indeed it was in these particular instances that the discoverers found the truth, without the help of maxims." (IV, 7, § 11.) General propositions may now be of use, because the very naming of them satisfies us, when we are once accustomed to use them. "But before custom has settled this, I am apt to imagine it is quite otherwise, and that the child, when part of his apple is taken away, knows it better in that particular instance, than by this general proposition: the whole is equal to all its parts; and that if one of these had need to be confirmed to him by the other, the general has more need to be let into his mind by the particular, than the particular by the general. *For in particulars our knowledge begins, and so spreads itself by degrees to generals. Though afterwards the mind takes the quite contrary course, and having drawn its knowledge into as general* propositions as it can, makes these familiar to its thoughts, and accustoms itself to have recourse to them. Hence it comes to be thought in time, that more particular propositions have their truth and evidence from their conformity to these more general ones." (Ibid). This principle, that we reason from and about particulars, is more fully expounded in ch. 17, § 8, where he goes so far as to say: "Universality is but accidental to our knowledge, and exists only in this, that the particular ideas about which it is are such as more than one particular thing can correspond with and be represented by." He even denies the necessity of any general proposition in a syllogism—a very questionable position. Thus all the essentials of Mill's theory, and the steps into which he divides our inferences, seem clearly anticipated. The very illustrations at times seem to be analogous, the village matron with a sick child in Mill corresponding to the country gentlewoman recovering from a fever in Locke.

There are, of course, some developments in Mill's arguments which are not in Locke, but there is no difference of attitude, save that of greater tenderness to syllogism in Mill and the admission that it may be useful to a careful thinker in testing and verifying the accuracy of his own reasoning. Locke on the other hand looks upon it as of no use whatever to the discoverer, but only to the controversialist or teacher, and seems to deny that it is in any way useful in promoting discovery. I fancy Locke is right, but, however that may be, syllogism was such a public nuisance in his day that we may well excuse him from feeling so strongly on the point, whereas to Mill it could not possibly appear so dangerous or so mischievous. The physical sciences had been too long and too well worked without any reference to it, to make Archbishop Whately's resuscitation of its claims at all likely to mislead us.

It seems worth while to point out this anticipation, not for the purpose of lessening the great and permanent merits of J. S. Mill, but as a point of interest in the history of Philosophy.

J. P. Mahaffy.

XII.—CORRESPONDENCE.

Brentano's Logical Innovations.

In your first number Professor Flint, while criticising Brentano's recent work on Psychology, gives a few specimens of that author's discoveries in Logic well calculated to awaken, as he says, the most lively curiosity. Whatever the forthcoming special treatise may add to our knowledge of the new theory proposed, enough is said in his *Psychologie* to enable us to understand its principles. Allow me, as one who has examined these as soon as published, to offer the following remarks.

It will hardly be necessary to mark the passages of Mill's writings which may have led the Austrian Professor to his starting-point. Let me observe at once that the main feature of his reconstruction of logical doctrine consists in reducing all categorical propositions to what he calls existential propositions, doing away with the familiar distinction between subject and predicate terms. Where we say *Some man is sick*, he gives as a substitute, *There is a sick man*. Instead of *No stone is alive*, he puts *There is not a live stone*. On the other hand, he proposes to improve on the statement *Some man is not learned* by welding together the negative and the predicate term, and asserting *There is an unlearned man*. Finally, *All men are mortal* is to be expressed in his system *There is not an immortal man*. That is to say, he simply affirms or denies the existence of some object having either two positive qualifications, or one positive together with one negative.

Evidently, the order in which we mention those qualifications can make no difference. It is exactly the same, whether I maintain the existence of a *sick man* or that of a *human patient*; whether I refuse to admit that an *immortal man* or that a *human immortal* is a reality. This is what Brentano means, when he announces as one of his discoveries, that "any categorical proposition is liable to simple conversion"—a theorem which, taking words in their ordinary technical significance, could not be maintained for a moment.

Moreover, we see that, wherever we used to offer an opinion touching a whole class, the new propositions offer a denial of existence; so that, what Brentano calls a negative, is meant only for what we were taught to consider a universal proposition, and his affirmatives are the particular propositions of everybody else. Also, where the predicate term of the old Logic designed a positive quality, we get in certain cases a negative quality instead, merely by translation into the new formulæ. It may be shown that in every kind of lawful syllogism, when thus translated, one of the three terms is dissected into a positive term and its corresponding negative. Hence his series of startling declarations, which owe the whole of their apparent novelty to a tacit change in the use of time-honoured technical expressions.

Of more serious import is the condemnation passed upon all inferences from either one or two universal propositions to a particular one. No doubt, when we remember that by the new

system the former are turned into assertions of non-existence, it is clear that no accumulation of mere non-existences can vouch for the existence of anything; and so, from his point of view, Brentano is certainly right. However, we seem to touch here upon a curious discovery. The self-same facts which, stated in the usual manner, can be shown to involve certain other facts, would appear *not* to involve the latter as soon as stated in the new style. Before admitting such a paradox, logicians are bound to inquire whether Brentano's formulæ are really, as he assures us, the exact equivalents of the traditional four sorts of categorical propositions. And they will find, that in translating categorical universals into existential negatives, part of the meaning is dropt by the way, and precisely that part on which the condemned logical operations depend.

In an ordinary proposition the subject is necessarily admitted to exist, either in the real or in some imaginary world assumed for the nonce. It is further maintained either to admit or not of the qualifications comprehended in the predicate term. Accordingly, in the former case, the predicate term also is asserted to have its representative in that world in which we admit the subject to be. Whereas, in the case of a negative, it is not decided whether there be anything answering to the predicate term. *Ulysses is the son of Laertes* means nothing at all, unless we suppose Ulysses as existing at least in a world of fiction; and so it is with the proposition *Ulysses is not the son of Priam*; but in the latter instance it remains undecided whether there be (in the same assumed world) any son of Priam. For aught we learn from this proposition, Priam might have been a childless man through life. Again, *Bucephalus is not a winged horse* presupposes the existence of Bucephalus in some world, but does not assert that of a winged horse. Nor does it appear from *Bucephalus is not an Arab* that a race of Arabs is acknowledged to exist.

By disregarding, as Brentano and others do, the difference between the subject term and the predicate term, we lose an advantage even where we judge only of a part of a class. The proposition *Some children of Jupiter are mortals* proceeds from the existence of Jupiter's children (to wit, in the world of classical mythology); and so the class of *mortals*, to which it is implied they belong, is also thought of as continued into that assumed world. After this, we may infer *Some mortals are children of Jupiter*, because our first proposition has prepared us to extend the dominion of the term of *mortal* in that way. But he who begins with the latter statement appears to start from the common notion of mortals as belonging to the real world, and to attribute the same reality to Jupiter and his paternal function. By treating Conversion as a kind of inference, we retain the advantage of knowing at the outset the ground we move on. Whereas Brentano's comprehensive sentence, *There is somebody who is at the same time a mortal and a child of Jupiter*, leaves us in the dark about the order of things which it concerns.

Turning to propositions touching the whole of a class, our loss

becomes heavier still. When we say *No stone is alive*, or *All men are mortal*, we presuppose the existence of stones or of men. Nobody would trouble himself about the possible properties of purely problematical men or stones. Brentano thinks he gives the exact equivalent of those sentences when he maintains *There is not a live stone*, or *There is not an immortal man*, which may be true even if there be no stone or man whatever. No wonder, when one takes away the supposition which every judgment treated by common Logic involves, that the residue cannot yield all the conclusions to which one was entitled by the premisses in their original state.

Brentano had caught a glimpse of the difference between his existential and the old categorical propositions when he touched upon the theory of Herbart (as given by Drobisch, *Logik*, 3rd ed., § 55), that the subject in the latter is presupposed (*vorausgesetzt*). Unluckily, Drobisch adds in the same breath that the subject is not put forward unconditionally (*nicht unbedingt gesetzt*), and, that the meaning only is, that if the subject be assumed, the predicate applies to it (*dass, wenn man das Subject setzt, ihm das Prädicat . . . zukommt*). In opposition, Brentano calls it a strong, and even an impossible demand, to ask belief for the doctrine that the sentence *Some man walks* contains the tacit clause *provided there be a man at all*. Both authors appear to confound what is properly called a presupposition (*Voraussetzung*) with a mere condition (*Bedingung*). At least, Drobisch has not sufficiently guarded against such a construction of his words, and Brentano takes them in that sense. The person who tells me *Some man walks* would seem, according to the former, to make his opinion dependent on the contingency of the existence of man; this the latter refuses to admit, and so far he is right. On the contrary, such a person, by pronouncing about some man's actual condition, professes to be convinced in his own mind that the question of existence has been settled, or may be settled at any time, to his and his interlocutor's perfect satisfaction. This he *presupposes*, that is to say, he considers the statement about the existence as a separate one, to be tried outside of the proposition in hand, which latter starts from it, and deals only with some qualification of the subject. Hence it is quite possible for two different opponents to direct their attacks, one against the existence of the subject presupposed, and the other against the description of that subject given by the proposition itself. A close examination of the traditional inferences which our author rejects would have taught him that they derive their value from the presuppositions implied, and that the absence of the latter constitutes a material difference between the categorical propositions in common use, and the existential ones into which he pretends to translate them without any change of meaning (*ohne irgend welche Aenderung des Sinnes*).

There is no need to dwell upon his anticipations of the horror and dismay with which his doctrines will be received among logicians of the older school. They will suspect at once some such tampering with the names of things, and misunderstanding of the

import of common forms of thought, as I have just pointed out. As soon as they find that such are the merits of the new theory, they will cease wondering, and simply ask *cui bono?*

Certainly the purpose of Logic is served by turning its subject-matter in all directions, and examining it from every point of view. We may be thankful for any new system, provided always it do not give out as a refutation of traditional precepts what is only a re-arrangement of old truths. With this restriction it is possible that Brentano's promised treatise will throw additional light on some questions. Nevertheless, at all events, it will have the disadvantage which we least expect from an empirical psychologist, of trying to replace a more natural theory by an artificial one.

For instance, when we think all men to be mortal, we proceed from a notion of man acquired before, and maintain (say by generalisation from experience) that in every object answering to this notion the character of mortality exists also. Afterwards, occasion serving, we find that we have made it impossible for us, as long as we hold the same opinion, to assert the existence of an immortal man. It may be that we never in our lives speculate upon the supposition of such a being. Brentano would have us think of this supposition first of all, and reject it at once. But we could hardly reject it without a reason, and the most obvious one is our persuasion that all men we know of, and therefore all beings we recognise as men, are liable to die. To speak generally, strong proofs are wanted to make it plausible that any denial can arise in the mind except as opposed to an affirmation touching the same matter conceived before. In the genesis of our convictions, belief comes in earlier than negation. Nor does induction naturally proceed from warding off a particular proposition to adopting its contradictory universal, but from admitting the former to judging alike of the entire class.

Leyden, Feb. 1, 1876. J. P. N. Land.

Mr. Hodgson on Mr. Lewes's view of Philosophy.

Of Mr. Hodgson's five ways of distinguishing between Philosophy and Science (Mind, I., pp. 68, 69), the fourth is assigned to Mr. Lewes in these words: "A position may be taken up which ascribes to philosophy as its special work, besides the co-ordination and systematisation of the second head, a negative task—the task of disproving and keeping out of science all ontological entities, whether these appear merely as spontaneous products of the uncorrected imagination, or have been reduced into systems, such as for instance the Hegelian." Now this statement of Mr. Lewes's attitude towards Philosophy seems to me very inadequate. Take, for example, the following passage in *Problems of Life and Mind*, II., p. 223:—"Now, since we find in common discourse the constant recurrence of Matter, Force, Cause, Mind, Life, &c., it is obvious that these symbols condense and represent certain experiences, into

which they may be re-interpreted; and the purpose of the metaphysician is to analyse them, to show what are the experiences condensed and represented, by what logical processes the condensation takes place, and what real validity is to be assigned to the symbols. This is only to be effected by the aid of Psychology—an aid contemptuously rejected by ontologists, who probably divine that analysis so conducted would be fatal to their pretensions. When the Psychologist has shown that all the elements of experience condensed in these symbols are reducible to terms of Feeling, &c." It is evident here that Mr. Lewes considers philosophic treatment of the ultimate generalisations of science to be more than a mere systematisation and co-ordination of them, more even than a negative criticism of them with a view to eliminating all their transcendental, or what he calls metempirical, elements: that treatment includes, with him, *re-interpretation and analysis*. Equally evident is it that Mr. Lewes holds it to be the philosopher's work to aim at reducing the ultimate generalisations of science—Cause, Force, Life, Mind, &c.—to *terms of Feeling*. Many other passages besides, to be found here and there in the *Problems*, can fairly be interpreted thus, and do not seem to me to be fairly capable of any other interpretation. Mr. Lewes is by no means prepared to accept the ultimates of science as they come from the hands of the specialists who have reached them, and who (for quite sufficient reasons) agree to stop short there. According to him, these conclusions must themselves submit to further analysis, they must allow themselves to be expressed in terms of Feeling, they must consent to take their place as special modifications of the highest generalisation possible or conceivable—the ultimate of ultimates, Consciousness.

Nor is it only in separate passages that Mr. Lewes gives expression to this view of philosophic work and scope: his position is even more clearly marked in his discussions on Matter and Force, *Prob.* IV., Force and Cause, *Prob.* V., and The Absolute in Feeling and Motion, *Prob.* VI. His treatment of these questions is very much more than a mere attempt at classification and co-ordination; it is a searching analysis, resulting in the conclusion that all the ultimates of the various sciences—even of the most objective—are finally reducible to forms of Consciousness: and this, if I mistake not, is Mr. Hodgson's own doctrine throughout his paper in MIND.

In one respect, however, Mr. Lewes would almost certainly differ from Mr. Hodgson as he has expressed himself oftener than once in the paper under discussion. He would not, I believe, allow that the above distinction between philosophy and science is sufficient to constitute a difference *in kind*. Philosophy, it is true, carries the analysis of the scientific notions to the very bounds of possibility, and, from the very nature of the process, gives great prominence to the subjective contributions made to all objective phenomena; but the Method is the same—it is still analysis; the contents are different—but they are still given in experience; the prominence is allowed to subjective aspects—but even these become objective in the very act

of examining them. Regarded thus, Philosophy would indeed be entitled to call herself the science of sciences, because tracking the facts of consciousness to their innermost deeps, planting all the special sciences upon common ground, giving every objective phenomenon its highest validity by showing its indissoluble relation to that fact of facts—Self-consciousness. But its method would be strictly scientific all the same, since there is no other conceivable method of dealing with anything that can be properly called knowledge.

Arbroath, N.B. ALEXANDER MAIN.

XIII.—NEW BOOKS.

An Introduction to the Study of Logic and Metaphysics. By T. S. BARRETT. London: Provost & Co. 1875.

A readable little book (pp. 48) not detailed enough to bear out the promise of the title. The author contends for an extension of the scope of Logic in the spirit of Mill and Prof. Bain. He would define it as "The Science of the Conditions of Human Knowledge." Necessity is only to be found in the Principles of Consistency. The author adopts Hume's views of Causation. "Physical Science is really nothing but a collection and a classification of isolated but analogous facts."

System of Positive Polity. By AUGUSTE COMTE. Vols. I., II. London: Longmans & Co. 1875.

The first volume, translated by J. H. Bridges, M.B., gives the General View of Positivism, or outline of the main features of the system as a Religion based on a Polity, and the discussion of the cosmological and biological bases of Sociology. The second volume, translated by F. Harrison, M.A., contains Social Statics or the Abstract Theory of Human order. With the omission of the preface to the second volume, the original text is reproduced in translation unabridged. Marginal notes and Tables of Contents are added by the translators. Vols. III. and IV., completing the work, are announced to appear shortly.

Arthur Schopenhauer: His Life and his Philosophy. By HELEN ZIMMERN. London: Longmans & Co. 1876.

The author notes the fact that an Englishman, Mr. Oxenford, in the *Westminster Review* of 1853, was the first to assign Schopenhauer a place among the thinkers of the world. Since then his books have been widely read in Germany, and there is a growing curiosity in England to know more about the Philosophy of Pessimism. The author is no blind admirer, and faithfully depicts the character of the great καταφρονάνθρωπος. The book is mainly biographical, only two chapters out of the eleven being devoted to an account of the philosophy. We are told in the preface that "a translation of Schopenhauer's capital treatise is

contemplated by an accomplished German scholar now resident among us." It is to be hoped that the *English* will be as readable as that of the present volume.

Philosophy without Assumptions. By T. P. KIRKMAN, M.A., F.R.S. London: Longmans & Co. 1876.

According to the author, the only starting-point for a philosophy without assumptions is that of Descartes — "I am a thinking being." Among the data of self-consciousness is the feeling of exerted energy which we designate Will. Will baffled reveals to us a sphere beyond self. What we term the "external world" is only unknown x, standing for so much restraint on personal activity. To call it "matter," thereby implying entity, is an assumption. Unextended force-loci are all that we have warrant for, or indeed require for life, theoretical or practical. What need of Atoms, seeing that the physicist treats their force as concentrated in a spaceless "centre of gravity?" The thinker believes that other minds exist from the absurdity of doubting the theorem. "All continued and consistent phenomenal indications of invisible consciousness, intelligence, and will, are verily to me demonstrations of the unseen verities indicated." At the moment at which the existence of other minds becomes certain to me, the feeling of moral obligation is born. Thus we obtain as unimpeachable verity, and guide to action, "I am, I will, I ought." The philosophy of consciousness can carry us no further, but rational inference leads us to Religion and Theism. "The Infinite is my Cause;" and it is agreeable to reason to believe that the sum of forces which antagonises all finite will-force is the manifestation of a self-revealing God. There is besides in the book much polemical matter (of an over-lively sort) directed against Mill, Mr. Spencer &c.

Christian Psychology: The Soul and the Body in their correlation and contrast. Being a new translation of Swedenborg's tractate "De commercio Animae et Corporis, &c." With Preface and Illustrative Notes. By T. M. GORMAN, M.A. London: Longmans & Co. 1876.

The Preface and Illustrative Notes are to Swedenborg's tractate in the ratio of about ten to one. Quotations from a variety of sources, ancient and modern, occupy a large portion of a bulky volume. The author's design is apparently to show that "the philosopher of Stockholm" has anticipated the chief results of modern science and philosophy. Among recent depreciators of Swedenborg, he singles out for special animadversion two names not often found conjoined—Dr. Maudsley and Cardinal Manning.

The Sensualistic Philosophy of the Nineteenth Century, considered by ROBERT L. DABNEY, D.D., LL.D. Edinburgh: T. and T. Clark. 1876.

The following are the chief topics of this book: Review of the Sensualistic Philosophy of the Previous Century; Sensualistic

Ethics of Great Britain; Positivism; Evolution-Theory; Spirituality of the Mind; *A-Priori* Notions; Refutation of Sensualistic Ethics; Philosophy of the Supernatural. While the author believes that Sensualism in Philosophy leads to Sensualism in life, it is not for that reason he uses the ambiguous term, but as having no better word to denote "that theory, which resolves all the powers of the human spirit into the functions of the five senses and modifications thereof." The author finds in the disregard of the facts of subjective consciousness the key to the aberrations of nineteenth century philosophers.

Théorie générale de la Sensibilité. Mémoire contenant les éléments d'une solution scientifique des questions générales relatives à la nature et aux lois de la sensation, à la formation et au rôle des organes de sens, à l'action de la sensibilité sur le développement physique et intellectuel de l'individu et de l'espèce, par J. DELBŒUF, Professeur à l'Université de Liége. Bruxelles: 1876.

The first part of this short treatise (pp. 107) discusses the theory of Sensibility; the second, that of Motility. Under the former head the limits of Sensibility are defined, and a parallel instituted between the laws of sensation and certain laws of physics. The speculations on the origin of the senses remind the English reader of Mr. Spencer, although the author's views have been worked out independently, the hypotheses being further illustrated by the imagined origin of fresh senses, as the "magnetic." The transition from sensation to perception is mediated by Motility. The sense of effort is the primary experience; but the idea of motion follows hard upon it, as with a mobile organism movement forms the sensible manifestation of the display of its force. The following distinctions are drawn: "Movement is habitual, when one causes it *without knowing how;* instinctive, when one effects it *without knowing why;* reflex or automatic, when the individual produces it *without knowing it.*" Automatism is the perfect expression of mental existence. "The Ego is for the sentient being that which procures it the same sensation each time its volition is the same."

Théorie Scientifique de la Sensibilité. Le Plaisir et la Peine. Par LÉON DUMONT. Paris: Germer Baillière, 1875.

In this work (which forms a volume of the International Scientific Library), the author seeks to determine more precisely than has yet been done the nature and conditions of pleasure and pain. It consists of two parts, a general analysis and a special synthesis. In the former the author arrives at his general conception of pleasure and pain, as the accompaniments of an increase or a decrease of the *ensemble* of forces constituting the ego. This view is distinguished from previous theories; among others from that of Professor Bain, on the ground that when pleasure is made to depend on an increase of the vital *functions* there is really implied an expenditure, that is a loss, of force. In the second part, the author with the help of his principle makes a careful study of the various forms of plea-

sure and pain, giving special attention to the æsthetic pleasures. His theory of the ludicrous, which he had already expounded in a separate volume, is, perhaps, the most remarkable feature in this synthesis.

Le Positivisme, par ANDRÉ POEY. Paris: Germer Baillière, 1876.

This is the first of a series of works intended to popularise Positivism. The author has been an attentive student of the Positive Philosophy since 1855, but did not see his way to accepting the Religion and Polity till 1871. He has made his scientific reputation by several publications on meteorology, having prosecuted that science for many years in the United States and Mexico; and now, having obtained sufficient leisure, he is in a position to carry out his long-cherished design of helping the world to a better understanding of the work of Comte. In the present volume, reviewing the labours of Darwin and Haeckel and the psychophysical researches of Wundt, Fechner and others, he claims for Comte a fore-feeling, when not a fore-sight, of the doctrines of biological evolution and of the quantitative expression of mental facts.

Studien über die Volksseele, von EDUARD REICH. Jena, 1876.

The object of this volume is to illuminate the laws of life and mind by a comparison of social statistics derived from the most varied sources, and a careful survey of the physical conditions of well and ill-being. The author's conclusion of the whole matter runs thus: "In the last resort all welfare depends on the constitution we inherit from our forefathers and shall transmit to our descendants, and on right conduct during the whole of life. The corner-stone on which the weal of the national soul rests, and on which the temple of all real good of heart and mind must be seated, is the care of physical health (*Gesundheitspflege*)."

Das Leben der Seele, von Prof. Dr. M. LAZARUS. Zweite, erweiterte und vermehrte Auflage. Bd. I. Berlin, 1876.

The first edition of this work was published in 1855. It consists of a series of monographs on important psychological questions. The contents of the present volume are "Culture and Science," "Honour and Glory," "Humour," "On the Relation of the Individual to the Whole." The work is much more than a classification and description of phenomena; it is an attempt, in language adapted to the understanding of all educated readers, to get at the conditions and general principles of the phases of mental life passed in review by the author. In Psychology, the author sees a science yet in its early youth, but destined one day to fulfil the aspirations of Herbart in having a Static and Dynamic strictly mathematical.

Die Grundsätze der reinen Erkenntnisstheorie in der Kantischen Philosophie. Kritische Darstellung von AUGUST STADLER. Leipzig, 1876.

A searching examination of Kant's Principles of the Pure Under-

standing, with special reference to the following points: the content of each principle, the propriety of its assumption, and their combined worth and effect in the process of knowledge.

Philosophie als Denken der Welt gemäss dem Princip des kleinsten Kraftmasses. Prolegomena zu einer Kritik der reinen Erfahrung von Dr. Richard Avenarius. Leipzig, 1876.

The writer of this fresh and highly suggestive little work (80 pp.) sets out with the principle that mental life in its connection with organic life, as a whole, is determined to certain ends (*zweckmässig*), and that as a consequence of this its operations are invariably carried out in that particular way (among all possible ways) which involves the least expenditure of energy. The author here applies this conception of mental work solely to intellectual operations, and particularly to the process of "theoretic apperception," by which is understood the interpretation of presentations by a subsumption of the same under pre-existing concepts derived from previous perceptions. This apperception of objects and events by means of general concepts representing what is already known is, he maintains, the performance of a larger amount of work with the same expenditure of energy, and the impulse to bring our presentations under such general concepts (*begreifen*) illustrates the manner in which our mental life is controlled by the need of husbanding energy to the utmost. Philosophy is regarded by the author as consisting solely in an attempt to grasp the elements of experience under the comprehensive concepts. A necessary concomitant of this process is the purification of experience, that is the determination of the net result of the actually known, after eliminating the suppositions which have their origin in the naive modes of conception of the undisciplined intelligence (anthropomorphic conceptions, &c.). In this way the ideas of substance, force, causality, and necessity will be expelled as met-empirical (to use Mr. Lewes's happy expression). Experience will thus be reduced to two factors, Sensation and Motion, of which the former is to be regarded as the content of all existence, the latter as its form.

Optimismus und Pessimismus. Der Gang der christlichen Welt- und Lebensansicht, von Dr. W. Gass. Berlin, 1876.

The rival theories of Optimism and Pessimism occupy at the present time the minds of Germany to an extent we in England hardly appreciate. In the above-named treatise the theories are compared by a liberal-minded theologian. The writer decides in favour of Optimism, though after no unfair treatment of the opposite system. "Whoever looks upon life only as a cycle becomes Pessimist: he who considers it only as progress, becomes a superficial enthusiast or progressionist. The more earnest Optimism has to insert the first view into the second, and must accordingly recognise that progress passes through the difficulties of the cycle."

W. C. Coupland.

XIV.—NEWS.

Don José del Perojo's work, *Ensayos sobre el Movimento Intelectual en Alemania*, mentioned above (p. 277), consists of seven essays in all, four of them being specially philosophical, viz., on Kant, Schopenhauer, Professor Wundt, and Anthropology and Naturalism as represented by a number of writers (including, outside of Germany, Mr. Darwin and Professor Huxley). The young author, besides being engaged in the translation of Kant's works, has with great enterprise recently founded a fortnightly periodical, the *Revista Contemporánea* (128 pp.), which, with original contributions by Spaniards, gives translations of articles selected from foreign reviews, &c. Philosophy figures prominently in its pages.

It is proposed to erect a statue to Spinoza at the Hague on the occasion of the bi-centenary of his death, to be celebrated in February next. The statue will be erected, if possible, in sight of the spot on the Paviljoensgracht, where the philosopher dwelt in the last ten or twelve years of his life. An influential committee has been formed in Holland, with honorary members in other countries. Principal Tulloch, Professors Bain, Clifford, Huxley, Jowett, Max Müller, Tyndall, Dr. J. Hutchison Stirling, Messrs. W. E. H. Lecky, G. H. Lewes, F. Pollock, Herbert Spencer and W. Spottiswoode represent this country. Subscriptions are being received by Mr. F. Pollock, at 5, New Square, Lincoln's Inn, W.C., and by Dr. J. H. Stirling, at 4, Lavrock Bank, Trinity, Edinburgh. About £2000 are required.

Another philosophical martyr will also have a memorial. A monument is spoken of for Giordano Bruno at Rome, where he was burnt by the Inquisition on the 17th February, 1600.

The centenary of Herbart's birth will be celebrated on the 4th of May, at Oldenburg, where he was born.

Some of the German papers published lengthy biographical notices of Joseph Görres on occasion of the observance of the centenary of his birth, on 24th January last, by the Ultramontanes of the Rhine provinces. In Görres the instincts and temper of the philosopher were constantly overborne by the enthusiasm of the zealot, and under the changing circumstances of the age in which he lived he was always being drifted from his moorings. He began public life as a Jacobin, and ended it in 1848 as an Ultramontane of a very pronounced type, having passed through the Constitutionalist phase in the middle. It is, of course, in his latest "phase of faith" alone that he has recently been honoured, but it would not be hard to show that even at the last he was not really in harmony with the reigning principles of Ultramontanism. In Hegel's *Vermischte Schriften* there is a good review of his chief work, *Die Grundlage der Weltgeschichte*. The English reader will

find a brief notice of his philosophical views in Professor Flint's *Philosophy of History*, vol. I.

According to the *Revue Philosophique*, M. Renan is engaged on a new work, in three parts, to be entitled *Dialogues Philosophiques*. The first part (very short) will set forth all that can be regarded as certainly established in philosophy. The second will contain probabilities, inductions and surmises. The third (the longest) will open up "the region of dreams"—of aspirations and hopes.

A "Society for the Development of the Science of Education" has lately been formed. It proposes generally to "examine, systematise, and propound definite and verifiable principles upon which the practice of education should be based." The committee has been engaged in drawing out a detailed scheme of work, which will shortly be published, when it is hoped that branches will be formed for carrying on investigation simultaneously in different places on a uniform plan. One part of the Society's work will consist in recording all psychological facts having a bearing on Education. Communications relating to the nature, objects and plans of the Society should be addressed to Mr. C. H. Lake, Withernden, Caterham, Surrey.

The trustees of the late Dr. Andrew Bell, founder of Madras College, in St. Andrews, offered some time ago £6000 to found a chair of the Theory, History and Practice of Education in the University of Edinburgh, and £4000 to found a similar chair in the University of St. Andrews. Both Universities having accepted the offer, the trustees have recently presented to the Edinburgh chair Mr. Simon S. Laurie, author of a work on Ethics, and to the St. Andrews chair Mr. John M. D. Meiklejohn, well known as the translator of Kant's *Kritik der reinen Vernunft*. Mr. Laurie was secretary to the Endowed Schools Commission for Scotland, and Mr. Meiklejohn an assistant-commissioner.

The chair of Moral Philosophy in the University of St. Andrews has become vacant by the appointment of Professor Flint to the Chair of Divinity in Edinburgh. The appointment to the St. Andrews professorship rests with the University Court, a body of six, headed by the Lord Rector, who is at present Dean Stanley.

Professor W. S. Jevons having been appointed to the chair of Political Economy in University College, London, vacates his chair of Logic, Moral Philosophy and Political Economy in the Owens College, Manchester.

The next number of MIND will contain an article by Professor Helmholtz on the foundations of Geometry. The series of articles on Philosophy at the Universities will be continued by Mr. W. H. S. Monck, writing on Dublin.